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ABSTRACT

This guide, which is intended for classroom teachers, supervisors, and administrators in Alabama, contains the minimum required content (core program) for public school instruction in agriscience technology in grades 7-12. Presented first are the following: introduction examining the mission, purpose, goals, and structure of agriscience technology education; conceptual framework of Alabama's agriscience technology education course of study; discussion of instruction-related elements; and directions for interpreting the minimum required content. The next two sections consist of parallel lists of topics and content standards for the following: (1) exploratory courses (grades 7-8) in preagriscience and agriscience exploration; (2) the core program, including agriscience and agritechnology for grades 9-10; (3) the core program for grades 11-12 for specialized semester courses in agricultural metal fabrication, agricultural power machinery I and II, agricultural structures technology I and II, agricultural wood technology, agrimarketing, animal science, aquaculture, computer applications, agricultural entrepreneurship, environmental science, floral design and interiorscaping, forestry, golf course management, home maintenance and improvements, horticulture, leadership and career development, plant and soil science, poultry science, turf and landscape management, and wildlife and recreation management; and (4) two-year specialized courses in agritechnology construction, forestry and wildlife science, and horticulture and floriculture. For each course, the curriculum includes a course description and topics linked to content standards. Two appendixes provide diploma requirements and guidelines for local time requirements and homework. Contains 33 references. (KC)

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Alabama Course of Study

Agriscience Technology Education

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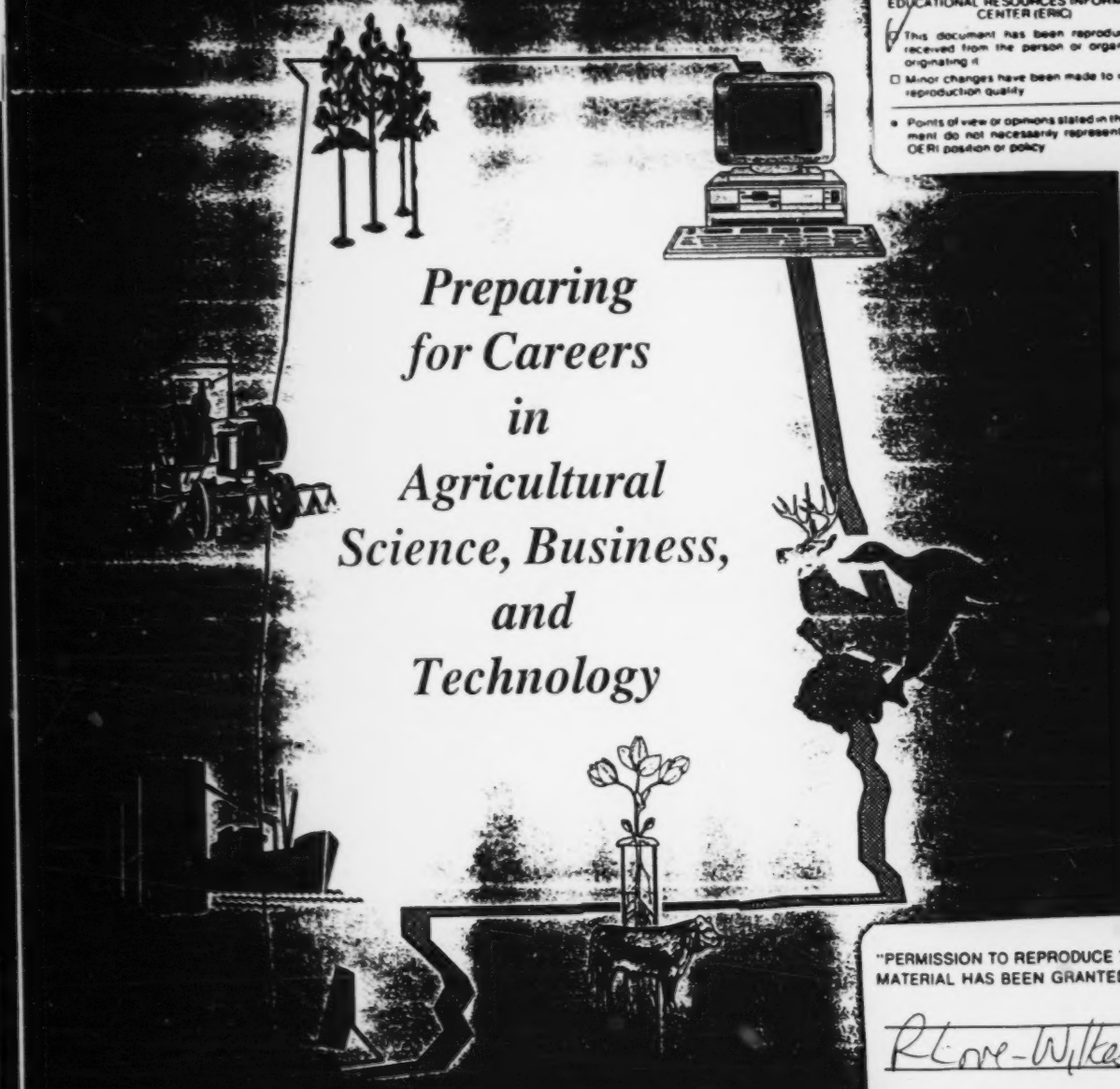

Preparing for Careers in Agricultural Science, Business, and Technology

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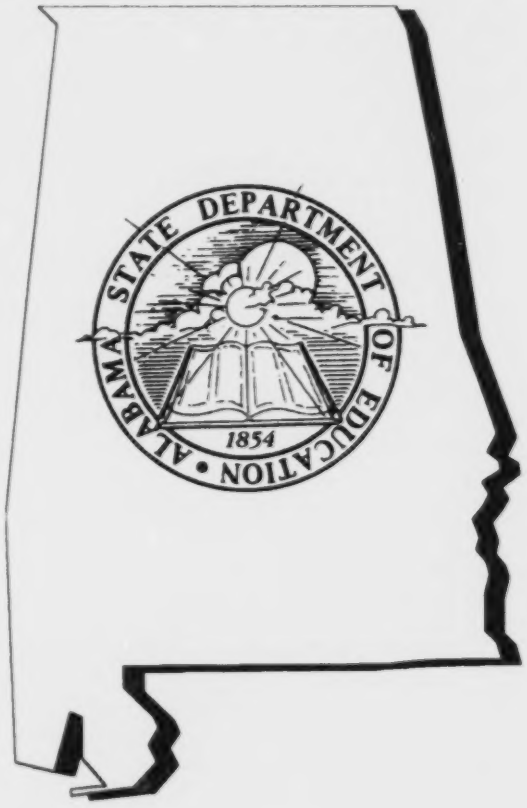
Alabama Course of Study

AGRISCIENCE TECHNOLOGY EDUCATION



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STATE OF ALABAMA
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July 1996

Dear Educator:

Vocational/Technical Education Curriculum is a vital part of the total education program. The course of study includes a complete range of technical skills and interpersonal skills. It incorporates higher-order thinking skills with academic skills to provide for the transition from secondary programs to postsecondary programs. The content of each vocational program emphasizes strong partnership with business and industry to provide for upward job mobility.

The course of study addresses the explosion of information and technological development that has necessitated change in curriculum development and instructional methodology. The **Alabama Course of Study** parallels national efforts to update vocational education to meet the emerging needs of the information age. It reflects a conscious decision to implement a vigorous, integrated, hands-on, minds-on approach for vocational instruction. This course of study serves as a cornerstone in the collaborative efforts among educators, parents, students, and business and technology leaders to provide opportunities for all Alabama students to become occupationally competent citizens.

Designed for use by classroom teachers, supervisors, and administrators to guide the development of local programs, this document contains the minimum required content (core program) for public school instruction in Grades 7-12 in vocational education. The State Board of Education, the Vocational Courses of Study Committee, and I sincerely believe that this Course of Study and instructional programs developed from it will equip future adult citizens with interpersonal and technical skills for life-long occupations.

Sincerely,

Ed Richardson
State Superintendent of Education

ER/jm

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Alabama Course of Study: Agriscience Technology Education

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Preface

The Alabama Course of Study: Agriscience Technology Education (Bulletin 1996, No. 13) provides the framework for the Agriscience Technology Education program in Alabama's public schools. Content standards in this document are minimum. They are fundamental and specific but not exhaustive. In developing local curriculum plans, school systems may include additional content standards to reflect local needs and add implementation guidelines, resources, and/or activities that, by design, are not contained in this document.

The 1995-96 Agriscience Technology Education Course of Study Committee extensively used various sources of references in the preparation of this document. These sources are listed in the Bibliography. In addition, committee members reviewed similar curriculum documents from other states, listened to and read statements from interested individuals and groups throughout the state, used each member's academic and experiential knowledge, and discussed issues among themselves and with colleagues. Finally, the Committee reached consensus and developed what it believes to be the best possible Agriscience Technology Education Course of Study for Alabama's students.

Acknowledgments

This document was developed by the Agriscience Technology Education sub-committee of the 1995-96 Vocational Education State Courses of Study Committee that is composed of vocational classroom teachers; local school system vocational directors, supervisors, and other administrators; college educators appointed by the State Board of Education; and business and professional persons appointed by the Governor (Ala. Code §16-35-1). The Agriscience Technology Education sub-committee began work in June 1995 and submitted its work to the State Board of Education for consideration in early 1996.

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STATE COURSES OF STUDY COMMITTEE

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The Committee extends appreciation to the **Morgan County Board of Education**, the **Jefferson County Board of Education**, and the **Lurleen B. Wallace Community College** for the use of their facilities in June for hosting the Vocational Education State Courses of Study Public Hearings.

Appreciation is also extended to **Stephen Cobb**, Chief, Industrial Section, Engineering Services Branch, Land Division, Alabama Department of Environmental Management, Montgomery, who served as content reviewer of the document.

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Introduction

Programs in Vocational Agriculture/Agribusiness Education have been in existence for more than 70 years. They have contributed extensively to the prosperity of today's increasing population.

From the beginning of this program in 1918 until the mid-1960s, the main emphasis was on production agriculture (farming). The Vocational Act of 1963, along with subsequent amendments and national studies, laid the groundwork to expand the program to include preparation for off-farm agricultural occupations in such areas as forestry, horticulture, agricultural supplies, agricultural processing, science and engineering, and agricultural resources.

Today, new emphasis is being placed on the integration of academics into existing agriculture/agribusiness curricula, especially in science and mathematics. As a result of this new emphasis, new programs dealing with agriscience and technology that relate to agriscience are being developed. Programs reflecting this new emphasis serve two major purposes or missions: 1) they provide knowledge and skills needed to enter and advance in agricultural careers; and 2) they help students obtain important knowledge that is needed for them to function as informed citizens in today's society.

The objectives of Agriscience Technology Education are to:

1. Provide education in and about agriculture from the perspective of science and technology.
2. Prepare students for entry-level employment in an agricultural career.
3. Prepare students for entry into post-secondary programs in agriscience technology.
4. Provide education about the role of agriscience in the conservation of the Earth's natural resources.
5. Develop life and employability skills essential for successful employment.
6. Develop effective leadership abilities needed to fulfill occupational, social, and civic responsibilities.

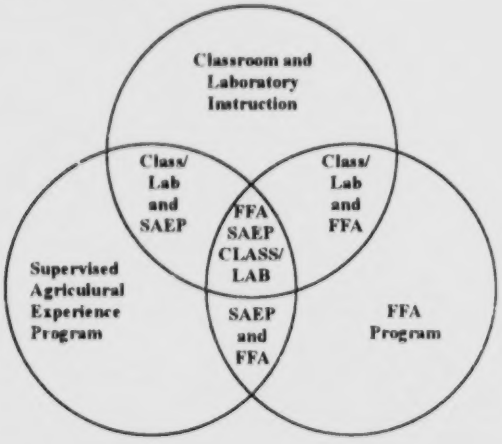
The Agriscience Technology Education program is a comprehensive agriscience program providing students appropriate classroom/laboratory instruction, supervised agricultural experiences, and personal development through FFA. These components are integrated so they complement each other. This integration should provide the most effective program for the student and make the best use of teacher time.

The classroom is the primary setting for instruction in agriscience theory and the related academics. Laboratory settings, such as greenhouse, aquatic, mechanic, and computer labs, further enhance classroom instruction.

The supervised agricultural experience program (SAEP) is planned as part of the classroom instruction. Students use this instruction to learn how to plan an SAEP; decide what types are possible; choose activities for their own SAEPs; and make appropriate arrangements with parents, teachers, and employers. The student conducts the SAEP under the supervision of the teacher who provides instruction on the necessary topics. The SAEP can be conducted at home, at the workplace, and/or in the school laboratory. Only the activities conducted in the school laboratory other than during classroom or laboratory instruction time can be counted as part of the SAEP.

The SAEP also overlaps with the FFA. The FFA has many activities that encourages students to do more in their SAEPs and provides career events that further develop useful skills. The FFA also provides awards and other recognition for achievements in SAEPs. These frequently lead to trips and other travel experiences that greatly enrich the student's education.

The FFA is a youth organization that was develop specifically to expand the opportunities in leadership and agriscience skill development for students in public schools. The FFA is an important teaching tool. It serves as a laboratory for developing leadership and citizenship skills. These, in turn, are helpful in learning agriscience skills. FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through Agriscience Technology Education.



Conceptual Framework

The purpose of the conceptual framework diagram that follows is to present an overall view of the core and optional courses in the Agriscience Technology Education program. The core courses in Agriscience Technology Education consist of those offered in high schools and in Area Vocational Centers (AVCs).

The total scope and sequence of the Agriscience Technology Education program includes exploratory courses in Grades 7 and 8 and core courses in Grades 9 through 12. One-year courses are offered in Grades 9 and 10. Specialized semester courses and specialized two-year courses are offered in Grades 11 and 12.

Pre-Agriscience and/or Agriscience Exploration are offered in Grades 7 and 8 respectively. These courses may be taught for 6, 9, 18, or 36 weeks. They are not prerequisite to any other Agriscience course.

For a student to be considered a program completor, he/she must complete one of these options.

Option 1: Agriscience **and** Agritechnology and two (2) specialized semester courses.

Option 2: Agriscience **or** Agritechnology and four (4) specialized semester courses.

Option 3: Both years of a two-year specialized course.

Students who have a need for a specialized semester course that relates to their occupational goal may enroll with special permission.

The specialized semester courses that may be offered at the high school level are these.

Computer Applications in Agriscience
Horticulture
Environmental Science
Animal Science
Agrimarketing Technology
Agricultural Metal Fabrication
Turf and Landscape Management
Forestry

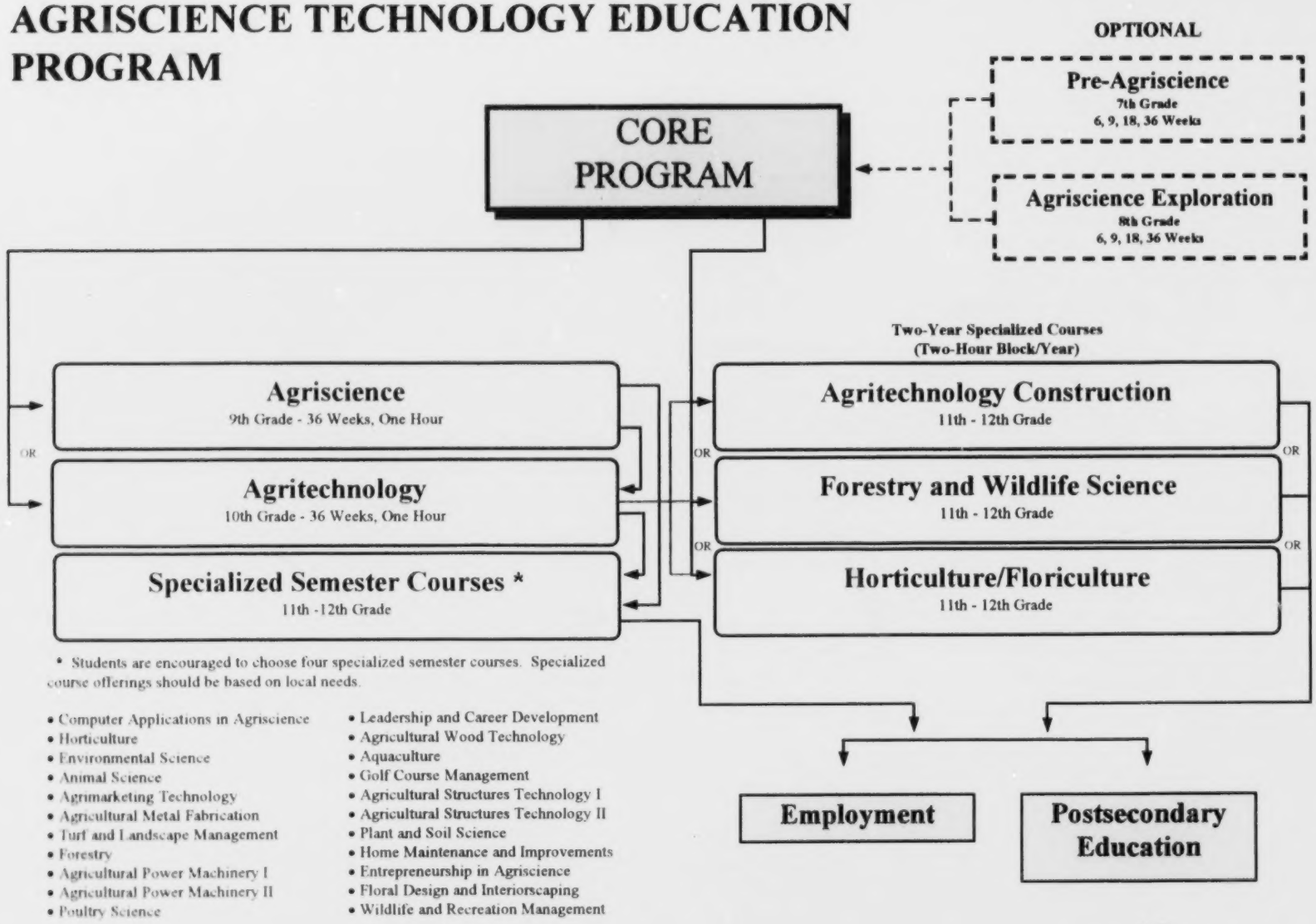
Agricultural Power Machinery I
Agricultural Power Machinery II
Poultry Science
Leadership and Career Development
Agricultural Wood Technology
Aquaculture
Golf Course Management
Agricultural Structures Technology I
Agricultural Structures Technology II
Plant and Soil Science
Home Maintenance and Improvements
Entrepreneurship in Agriscience
Floral Design and Interiorscaping
Wildlife and Recreation Management

The determination of courses to be offered at the local level should be based upon an assessment of the needs and interests of students and the labor needs and resources in the community.

Two-year specialized courses may be offered at the local high school and/or Area Vocational Center (AVC). Students who complete the tenth grade may enroll in courses at the AVCs without agriscience prerequisites. These courses are Agritechnology Construction, Forestry and Wildlife Science, and Horticulture/Floriculture.

Additional specialized semester courses may be offered if there is an identified local need and the course outline is submitted to and approved by the State Department of Education.

AGRISCIENCE TECHNOLOGY EDUCATION PROGRAM



* Students are encouraged to choose four specialized semester courses. Specialized course offerings should be based on local needs.

- Computer Applications in Agriscience
- Horticulture
- Environmental Science
- Animal Science
- Agrimarketing Technology
- Agricultural Metal Fabrication
- Turf and Landscape Management
- Forestry
- Agricultural Power Machinery I
- Agricultural Power Machinery II
- Poultry Science
- Leadership and Career Development
- Agricultural Wood Technology
- Aquaculture
- Golf Course Management
- Agricultural Structures Technology I
- Agricultural Structures Technology II
- Plant and Soil Science
- Home Maintenance and Improvements
- Entrepreneurship in Agriscience
- Floral Design and Interiorscaping
- Wildlife and Recreation Management

Instruction-Related Elements

Curriculum

The Agriscience Technology Education curriculum provides students with a broad spectrum of challenges and opportunities. Students are guided through a carefully planned program of study that encompasses individual needs and occupational goals. Upon completion of the Agriscience Technology Education curriculum, the student should possess entry level skills for his/her occupation of choice in the field of agriscience technology.

Facilities

The field of agriscience technology is diverse and highly technological. Modern, well-equipped facilities are essential to the success of Agriscience Technology Education programs.

The mission of Agriscience Technology Education programs is to prepare students for job entry into the various agriscience/agritechnology fields. Students must have access to facilities that parallel those found in the industry.

Classroom Environment

To promote positive learning experiences in the agriscience technology classroom, it is crucial that the teacher exhibits trust, safety, enthusiasm, and conditions essential to learning. The classroom should be managed to provide to students high academic and social expectations and to provide opportunities for them to be responsible and involved. Activities and experiences conducted in the classroom should teach knowledge and skills necessary for students to manage the challenges of living and working in today's society. As many hands-on activities as possible should be incorporated into the instructional program. Through these activities, students creatively solve problems and improve their communication and social skills. Teachers should utilize technology in the classroom to present instruction and assist students in completing learning activities.

Laboratory Emphasis

Laboratory experiences are an important component in the Agriscience Technology Education program. They provide students with opportunities to plan, organize, and implement learning activities; apply principles; learn processes; and practice desired behaviors. Productive, experimental, and observational laboratory experiences should be utilized in the instructional program. Laboratories should be equipped with an adequate number of up-to-date tools and equipment that are used in the workplace to allow students to master content standards. Consumable supplies should be made available for laboratory and demonstration purposes.

Integration of Vocational and Academic Studies

Agriscience Technology Education seeks ways to blend higher-level academic courses with quality vocational studies, especially for students who grasp information more readily through practical applications than through abstract learning modes. An effective mixture of both academic and vocational studies is a way to achieve the common goal of preparing high school graduates to work and learn.

In Agriscience Technology Education, basic skills along with process skills, such as decision making, problem solving, and critical thinking, are integrated into classroom instruction. Courses have academic credibility and reinforce basic skills because they are embedded heavily with mathematical and science skills. Content standards provide opportunities for practical application of these skills through real-life situations.

Adequate Financing

Local, state, and federal funds are not always adequate to meet program needs. These funds are often allocated with guidelines that may prevent spending on miscellaneous items. Finances obtained through fund raising and donations provide additional resources and allow flexibility.

School and Community Support

An effective Agriscience Technology Education program should bring about interaction among the agriscience technology program, the school family, and the community, including business and industry. The program can do this by keeping in constant communication with each of these groups. The craft committee is useful in determining the goals and objectives of the program. Each Agriscience Technology Education program should establish friendly relations with the press. The more understanding the media has about the program, the more likely they are to give their readers the same understanding. The press, however, is not the only vehicle that should be used to tell the public what is going on in an Agriscience Technology Education program. A newsletter outlining the program could provide assistance in this matter.

Qualified Teachers

An effective Agriscience Technology Education program depends upon teachers staying abreast of current trends and methods pertaining to agriscience technology. Workshops and graduate level courses are available to teachers to provide training and retraining in all areas of agriscience technology.

Vocational Student Organization

FFA Chapters are the tool used in the agriscience technology class to exhibit the results of class achievement. Participation in individual and team career development events that are designed to complement the curricula help the student to gain a better understanding of each area.

Concepts gained through rigorous competition help the student to develop leadership. The FFA teaches the importance of citizenship and stresses the necessity of a strong organizational structure. FFA members work cooperatively with the school and community organizations.

Quality Education

Quality education includes a combination of cognitive, affective, and psychomotor skills. Agriscience Technology Education encompasses all three skills. The academic principles of science that require cognitive skills will be included . Affective skills will be enhanced through public speaking, parliamentary procedure, and other leadership and personal development activities through the FFA. Psychomotor skills will be developed through experiments, school projects, home projects, and school laboratory facilities. Communication and mathematical skills are integrated into the courses in the Agriscience Technology program.

Health and Safety

In the Agriscience Technology Education program, learning by doing is essential. It is imperative that instruction in health and safety is provided. Content standards on health and safety are infused in each course. It is also important that facilities and equipment meet safety standards to provide a safe learning environment.

Business and Industry Partnership

With the emphasis on schools to provide students with experiences to make smooth transitions from school to work, work-based learning and supervised experiences are incorporated in each course to provide students with real-work perspectives. Teachers are encouraged to develop partnerships with business and industry in the community. Through these partnerships, curriculum needs are determined; and community support for the program is provided. Utilizing craft committee members is a means of assistance in recruitment of students, placement of students, acquisition of equipment, and financial and physical support for the program.

Scheduling Flexibility

This course of study is designed to give flexibility at the local level for selecting course offerings to meet student instructional needs, community needs, and business and industry requirements. Additional specialized semester courses may be offered if justification and course outlines containing content standards are submitted to and approved by the State Department of Education.

Special Populations

Courses, instructional strategies, and equipment may be modified to ensure that special populations have equal access to the full range of learning experiences and skill development in Agriscience Technology Education. Individual needs of students must be determined by assessments of their interests, abilities, and special needs. Once individual needs have been determined, a support service program, planned cooperatively with the agriscience technology teacher and support personnel, may be initiated.

SCANS Report

The Secretary's Commission on Achieving Necessary Skills (SCANS) was appointed by the Secretary of Labor to determine the skills that young people need to succeed in the world of work. The Commission's fundamental purpose was to encourage a high-performance economy characterized by high-skill, high-wage employment.

SCANS focuses on one important aspect of schooling: what is called the "learning a living" system. The **SCANS** skills are made up of a three-part foundation of skills and personal qualities and of five workplace competencies that are needed for solid job performance. A high-performance workplace requires workers who have a solid foundation in the basic literacy and computational skills, in the thinking skills necessary to put knowledge to work, and in the personal qualities that make workers dedicated and trustworthy. High-performance workplaces also require these competencies: the ability to manage resources, to work amicably and productively with others, to acquire and use information, to master complex systems, and to work with a variety of technologies. This combination of foundation skills and workplace competencies are integrated into the courses in the Agriscience Technology Education program. These skills are included in the Agriscience Technology Education Course of Study in the Essential Content Standards section under the Employability Skills topic.

SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM (SAEP)

An important part of all courses in Agriscience Technology Education is the Supervised Agricultural Experience Program (SAEP). Supervised Agricultural Experience Programs consist of all learning experiences related to instruction that require development beyond and, in some instances, during the normal school day and for which systematic instruction and supervision are provided by teachers, parents, employers, and others. Each student is instructed regarding the vast importance and many advantages of this program. Participation in the SAEP provides students the opportunity to gain real-life experiences through hands-on activities.

Activities in the SAEP may be conducted for pay or simply for experience. Whether for pay or not, the experiences obtained are worth the effort and give the participant an edge in the job market. Supervised agricultural experience programs help students:

1. Apply skills and knowledges gained during classroom, laboratory, and FFA activities to a work situation.

2. Gain work experience prior to leaving school.

3. Develop desirable habits, understandings, appreciations, ideals, abilities, and attitudes through challenging true-to-life situations.

4. Develop originality, pride of ownership, initiative, self-confidence, and managerial ability.

5. Plan work, make budgets, use financial agreements, review information, form judgments, evaluate, make decisions, solve problems, put plans into action, and keep accurate records.

6. Develop cooperative work habits.

7. Develop relationships among the school, the home, and the community.

8. Develop skills in earning, saving, and using money.

Directions for Interpreting the Minimum Required Content

1. Content Standards are statements of what students should know and be able to do. In this document, the minimum required content as prescribed by the Alabama State Board of Education (Ala. Code §16-35-3) is listed as content standards. The order in which content standards are listed is not intended to convey a sequential order for grade-level instruction. A content standard may describe a concept or skill that will be addressed throughout the school year.

2. Content standards describe what students should know and be able to do at the conclusion of a course. Each content standard contains a **stem** that completes the phrase, "Students will ..." The stem describes what students are expected to do by the end of a course or grade level.

> Students will:
> *Analyze the role of plants in the balance of the ecological system.*
>
> (Agriscience - Content Standard 15)

3. Additional minimum required content may be listed under a content standard and denoted by a hyphen. The **additional content** provides further specificity for the content standard.

> Students will:
> *Diagnose and control plant problems.*
> - Insects
> - Diseases
> - Weeds
>
> (Agriscience - Content Standard 16)

4. **Examples** help clarify the content standard. They are illustrative but not exhaustive. Teachers may add to or substitute examples when planning instruction.

> Students will:
> *Analyze the effects of agriscience/agriculture practices on soil contamination.*
> *Examples: pesticides, fertilizers, animal waste, agricultural fuels*
> (Agriscience - Content Standard 32)

Exploratory Courses

(Optional)

Pre-Agriscience

7th Grade

6, 9, 18, 36 Weeks

- Agriscience Technology Careers
- SAEP
- Health and Safety
- Environmental Science
- Animal Science
- Plant Science
- Drafting
- Wood Technology
- Communications
- Computers in Agriscience
- Leadership Development

Agriscience Exploration

8th Grade

6, 9, 18, 36 Weeks

- Agriscience Technology Careers
- SAEP
- Health and Safety
- Animal Science
- Plant Science
- Ecology and Conservation
- Agriscience Technology
  - Woodworking
  - Electricity
  - Metal Fabrication
  - Power Mechanics
- Computers in Agriscience
- Leadership Development

PRE-AGRISCIENCE

7TH GRADE
MINIMUM REQUIRED CONTENT

This is an exploratory course with units of instruction pertaining to the agriscience/agriculture industry and career guidance together with some basic laboratory skills. Areas of instruction include careers, leadership development, environmental science, animal and plant science, drafting, wood technology, and communications. This course is designed to be taught as a one-hour class for 6, 9, 18, or 36 weeks.

Students are expected and encouraged to develop a Supervised Agricultural Experience Program (SAEP) so they may put into practice many of the skills and competencies obtained as a result of the instructional program.

FFA is the co-curricular vocational student organization. FFA is an integral component of Agriscience Technology Education and provides educational and leadership development activities that are integrated into the instructional program. It is FFA's mission to enhance the education of students with interests in agriscience technology.

It is recommended that a six-week course contain the following content standards: 1, 4, 5, 21, 24, 27, 28, 29, and 33.

It is recommended that a nine-week course contain the following content standards: 1, 4, 5, 7, 8, 9, 14, 15, 16, 21, 24, 27, 28, 29, and 33.

It is recommended that an 18-week course contain the following content standards: 1, 4, 5, 7, 8, 9, 14, 15, 16, 21, 24, 27, 28, 29, 30, 31, 32, 33, and 34.

TOPICS	CONTENT STANDARDS
	Students will:
AGRISCIENCE TECHNOLOGY CAREERS	1. Explore agriscience and technology careers. 2. Explore the major sectors in the agricultural industry. - Major sectors - Number of people employed in each sector - Examples of jobs in each sector 3. Discuss the impact of technology on agriscience careers.

PRE-AGRISCIENCE

7TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM (SAEP)	4. Explore the characteristics of an SAEP. - Manageability - Availability of facilities - Financing - Record keeping
HEALTH AND SAFETY	5. Apply laboratory safety rules and procedures. - Physical safety - Clothing safety - Tool safety - Material safety - Courtesy of coworkers
ENVIRONMENTAL SCIENCE	6. Explain the role of fertilizers and pesticides in agriculture and the environment. 7. Recognize the importance of conserving and managing water. 8. Identify natural resources closely associated with agriculture and land use. 9. Identify examples of technologies that have had damaging and/or good effects on the environment. 10. Explain ways of preventing loss of soil by water erosion. - Identify signs of erosion.

PRE-AGRISCIENCE

7TH GRADE

MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ENVIRONMENTAL SCIENCE (continued)	11. Identify ways the water supply becomes polluted.
	12. Explain the benefits of the forest and woodlands.
	13. Identify methods helpful in the conservation of wildlife.
ANIMAL SCIENCE	14. Describe the purposes of domesticated animals.
	15. Identify breeds of domesticated animals.
PLANT SCIENCE	16. Describe the importance of plants.
	17. Describe the ways plants reproduce.
	18. Describe the function of seed in the growing of plants.
	19. Demonstrate the ability to germinate seeds. - Parts of seed - Germination requirements
DRAFTING	20. Identify the tools and supplies used in drafting.
	21. Use whole numbers and fractional units on a ruler.
	22. Identify two types of lines used in drawing. - Dimension - Extension

PRE-AGRISCIENCE

7TH GRADE

MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
WOOD TECHNOLOGY	23. Practice the proper safety rules.
	24. Identify basic hand woodworking tools.
	25. Identify nails and screws.
	26. Select and use wood glue.
	27. Demonstrate the way to sand wood properly.
	28. Describe the importance of a good wood finish.
	29. Select and apply a wood finish.
COMMUNICATIONS	30. Explore various types of communications. Examples: computers, telephone, facsimile, electronic mail
COMPUTERS IN AGRISCIENCE	31. Explain the role of computers in agriscience/ agriculture.
	32. Run agriscience/agriculture programs applicable to course content.
LEADERSHIP DEVELOPMENT	33. Develop concepts that pertain to leadership, cooperation, and citizenship.
	34. Demonstrate the ability to communicate verbally.

AGRISCIENCE EXPLORATION

8TH GRADE
MINIMUM REQUIRED CONTENT

This is an exploratory course with units of instruction in areas such as careers, leadership development, animal science, plant science, ecology and conservation, computers, and agriscience technology: woodworking, electricity, metal fabrication, and power mechanics. This course is designed to be taught as a one-hour class for 6, 9, 18, or 36 weeks.

Students are expected and encouraged to develop a Supervised Agricultural Experience Program (SAEP) so they may put into practice many of the skills and competencies obtained as a result of the instructional program.

FFA is the co-curricular vocational student organization. FFA is an integral component of Agriscience Technology Education and provides educational and leadership development activities that are integrated into the instructional program. It is FFA's mission to enhance the education of students with interests in agriscience technology.

It is recommended that a six-week course contain the following content standards: 1, 2, 4, 5, 24, 25, 27, 29, and 36.

It is recommended that a nine-week course contain the following content standards: 1, 2, 4, 5, 6, 9, 12, 13, 24, 25, 27, 29, and 36.

It is recommended that an 18-week course contain the following content standards: 1, 2, 4, 5, 6, 9, 12, 13, 17, 18, 19, 20, 24, 25, 27, 29, 34, 35, 36, 37, and 38.

TOPICS	CONTENT STANDARDS
	Students will:
AGRISCIENCE TECHNOLOGY CAREERS	1. Discuss the impact of technology on agriscience/ agriculture careers. 2. Identify factors to consider when selecting a career. - Personal interest and abilities - Preparation - Salary - Job opportunities 3. Discuss the importance of good work habits.

AGRISCIENCE EXPLORATION

8TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM (SAEP)	4. Explore the characteristics of an SAEP. - Manageability - Availability of facilities - Financing - Record keeping
HEALTH AND SAFETY	5. Apply laboratory safety rules and procedures. - Physical safety - Clothing safety - Tool safety - Material safety - Courtesy of coworkers
ANIMAL SCIENCE	6. Define terminology pertaining to animal science. 7. Identify major parts of beef animals, swine, sheep, horses, and poultry. 8. Evaluate animals within a group based on established criteria.
PLANT SCIENCE	9. Define plant science terms. 10. Describe the functions of the major parts of plants. 11. Name requirements for photosynthesis.
ECOLOGY AND CONSERVATION	12. Identify terms associated with ecology and conservation.

AGRISCIENCE EXPLORATION

8TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ECOLOGY AND CONSERVATION (continued)	13. Describe the major components of the ecological system: - Food chain - Water cycle
	14. Name factors that affect population size.
	15. Name the types of pollution, their sources, and methods of prevention.
	16. Describe the "greenhouse effect" and its effect on humans, crops, and animals.
AGRISCIENCE TECHNOLOGY WOODWORKING	17. Demonstrate the use of appropriate laboratory safety precautions.
	18. Identify and properly use woodworking tools. - Marking and measuring tools - Saws - Drilling and boring tools - Screwdrivers and wrenches - Hammers and mallets - Pliers and cutters
	19. Identify and describe the uses of different types and sizes of nails and screws.
	20. Identify and properly use portable power tools. Examples: jig saw, drill, sander

AGRISCIENCE EXPLORATION

8TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
AGRISCIENCE TECHNOLOGY WOODWORKING (continued)	21. Adjust and properly use stationary power tools. Examples: drill press, scroll saw
	22. Calculate the number of board feet.
	23. Prepare a bill of materials and a plan of procedure.
AGRISCIENCE TECHNOLOGY ELECTRICITY	24. Demonstrate the proper use of safety precautions for electricity.
	25. Develop an understanding of the electron theory.
	26. Describe the relationship between magnetism and electricity.
	27. Identify electrical terms.
	28. Name sources of electricity.
	29. Identify and make electrical splices.
AGRISCIENCE TECHNOLOGY METAL FABRICATION	30. Demonstrate the proper use of safety precautions for arc welding.
	31. Demonstrate the proper procedures for striking an arc. - Types of welders - Tools and equipment - Procedure for striking an arc

AGRISCIENCE EXPLORATION

8TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
AGRISCIENCE TECHNOLOGY POWER MECHANICS	32. Interpret safety rules that apply to small engine repair.
	33. Perform routine care and maintenance on small gas engines.
COMPUTERS IN AGRISCIENCE	34. Explain the role of computers in agriscience/ agriculture.
	35. Run agriscience/agriculture programs applicable to course content.
LEADERSHIP DEVELOPMENT	36. Develop concepts that pertain to leadership, cooperation, and citizenship.
	37. Demonstrate the ability to communicate verbally.
	38. Apply the practices of parliamentary procedure.

CORE PROGRAM

Agriscience

9th Grade - 36 Weeks, One Hour

- Career Opportunities
- Technological Advancements
- Employability Skills
- Health and Safety
- SAEP
- Computers in Agriscience
- Agricultural Issues
- Leadership Development
- Agricultural Accident Prevention
- Agricultural Economics/Management
- Entrepreneurship in Agriscience
- Plant and Soil Science
- Animal Science
- Conservation and Natural Resources
- Environmental Science
- Environmental Issues
- Biotechnology in Agriscience/ Agriculture
- Agricultural Wood Technology
- Agricultural Electricity

Agritechnology

10th Grade - 36 Weeks, One Hour

- Career Opportunities
- Technological Advancements
- Employability Skills
- Health and Safety
- SAEP
- Computers in Agriscience
- Agricultural Issues
- Leadership Development
- Agricultural Accident Prevention
- International Trade/Global Marketing
- Agribusiness Sales
- Environmental Issues
- Soil Science
- Horticulture
- Forestry
- Aquaculture
- Agricultural Metal Fabrication
- Agricultural Plumbing
- Agricultural Power Mechanics

Specialized Semester Courses*

11th-12th Grades

* Students are encouraged to choose four specialized semester courses. Specialized semester course offerings should be based on local needs.

- Computer Applications in Agriscience
- Horticulture
- Environmental Science
- Animal Science
- Agrimarketing Technology
- Agricultural Metal Fabrication
- Turf and Landscape Management
- Forestry
- Agricultural Power Machinery I
- Agricultural Power Machinery II
- Poultry Science
- Leadership and Career Development
- Agricultural Wood Technology
- Aquaculture
- Golf Course Management
- Agricultural Structures Technology I
- Agricultural Structures Technology II
- Plant and Soil Science
- Home Maintenance and Improvements
- Entrepreneurship in Agriscience
- Floral Design and Interiorscaping
- Wildlife and Recreation Management

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

The content standards in this section are common to all Agriscience Technology Education courses in Grades 9 -12. The teacher will select the essential content standards appropriate to include in each course. Every school offering Agriscience Technology Education shall provide courses that include the following common content standards.

TOPICS	CONTENT STANDARDS
	Students will:
CAREER OPPORTUNITIES	1. Explore the career opportunities available relating to the course being studied.
	2. Assess the importance of the content of the course being studied to the economy of the local area, county, state, nation, and world.
TECHNOLOGICAL ADVANCEMENTS	3. Identify agriscience/agricultural technologies that have had an impact upon the production of products and the providing of services and supplies relating to the course being studied.
	4. Evaluate the use and impact of technology in the agriscience/agriculture workplace relating to the course being studied.
	5. Relate the adoption of agriscience/agriculture technologies to the increase in the availability of careers outside the field of agriscience and agriculture.
	6. Discuss current technological trends and innovations that directly affect the agriscience/ agriculture industry relating to the course being studied.

ESSENTIAL CONTENT STANDARDS

ALL COURSES

GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
EMPLOYABILITY SKILLS	
FOUNDATION SKILLS	
Basic Skills	
Reading	7. Locate, understand, and interpret written information.
Writing	8. Communicate thoughts, ideas, information, and messages in writing.
Mathematics	9. Perform basic computations and approaches and practical problems by choosing appropriately from a variety of mathematical techniques.
Listening	10. Receive, attend, interpret, and respond to verbal messages and other cues.
Speaking	11. Organize ideas and communicate orally.
Thinking Skills	12. Use efficient learning techniques to acquire and apply new knowledge and skills.
	13. Recognize problems and devise and implement plans of action.
	14. Generate new ideas through creative thinking.
	15. Make decisions through specifying goals and constraints, generating alternatives, considering risks, and evaluating and choosing the best alternatives.
Personal Quality	16. Demonstrate honesty and choose ethical courses of action.

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
Personal Quality (continued)	17. Develop and practice character building traits. Examples: courage, patriotism, citizenship, honesty, fairness, respect for others, kindness, cooperation, self-respect, self-control, courtesy, compassion, tolerance, diligence, punctuality, cleanliness, school pride, respect for the environment, patience, creativity, sportsmanship, loyalty, perseverance, cheerfulness
	18. Demonstrate individual responsibility, self-esteem, and self-management.
WORKPLACE COMPETENCIES **Interpersonal Skills**	19. Serve clients/customers, working to satisfy customer's expectations.
	20. Participate as a member of a team, contributing to group efforts.
	21. Demonstrate leadership skills, including teaching others new skills.
	22. Work well with people from culturally diverse backgrounds.
Information Processing Skills	23. Acquire, organize, maintain, interpret, and communicate information, using computers to aid this task where necessary.
Systems Skills	24. Develop an understanding of how social, organizational, and technological systems work and operate effectively with them.
	25. Understand relationships among technological functions, pinpoint errors in technologies' performance, and correct problems in operations.

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
Systems Skills (continued)	26. Design or improve systems.
Technology Skills	27. Select the appropriate tools or equipment for a task, including computers and related technologies.
	28. Understand the function and proper procedures for technologies related to a task.
	29. Prevent, identify, or solve problems with equipment, including computers and other technologies.
	30. Understand basic safety precautions and take measures to implement them.
Resources Skills	31. Demonstrate the ability to allocate time, money, materials, space, and staff.
HEALTH AND SAFETY	32. Understand the importance of agriscience technology accident prevention.
	33. Practice laboratory safety and management.
	- Develop safety awareness. - Protect eyes, face, feet, and other parts of the body with protective clothing and devices. - Keep all work areas clean and free of tools, materials, grease, and dirt. - Understand safety color coding system. - Practice proper shop behavior. - Understand fire prevention and use fire extinguishers. - Understand first aid requirements. - Use tools and equipment safely. - Follow correct laboratory procedures.

ESSENTIAL CONTENT STANDARDS

ALL COURSES

GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
HEALTH AND SAFETY (continued)	34. Demonstrate the use of safety rules to follow in the laboratory.
	35. Demonstrate a knowledge of the procedure to follow in case of a fire in the laboratory.
	36. Demonstrate a knowledge of the procedure to follow in case of an accident in the laboratory.
	37. Demonstrate the use of safety rules to follow when performing agriscience technology activities relating to the content of the course being studied.
	38. Discuss the proper disposal of waste materials associated with agriscience/agriculture activities relating to the content of the course being studied.
SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM (SAEP)	39. Explain the relationship between classroom/ laboratory instruction, Supervised Agricultural Experience Program, and FFA.
	40. Explore the types of SAE programs. - Exploratory - Entrepreneurship - Placement
	41. Develop an SAE program. - Identify personal interests. - Identify opportunities. - Set goals. - Select projects.

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
Supervised Agricultural Experience Program (SAEP) (continued)	42. Develop skills in recordkeeping for the SAE program. - Inventory - Net worth - Income and expenses - Cash flow
	43. Analyze the SAE program. - Summarize SAEP records. - Analyze SAEP by interpreting and using financial statements.
	44. Evaluate and replan the SAE program based on enterprise analysis and financial statements. - Short-range goals and plans - Long-range goals and plans
Computers in Agriscience	45. Assess the role of computers in agriscience technology. Examples: management tool, record keeping, information source, computerized equipment
	46. Explore computer applications in agriscience technology. - Data management - Word processing - Spreadsheets - Accounting and record keeping - Telecommunications - Agricultural networks - Remote control and remote sensing

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
Computers in Agriscience (continued)	47. Discuss the trends and issues in agriscience technology computing. - Trends: size, memory, storage capacity, costs, speed, operating systems - Issues: privacy, software piracy, computer crime
	48. Run agriscience technology programs applicable to content of the course being studied.
Agricultural Issues	49. Analyze agricultural issues relating to the content of the course being studied. - Identify and prioritize key agricultural issues. - Conduct research to increase their knowledge about issues. - Analyze information to communicate effectively both sides of an agricultural issue. - Interact and participate in group discussion. - Form independent decisions utilizing a process of conflict resolution. - Gain self-confidence in their ability to make rational decisions.
Leadership Development	50. Develop competent and assertive agricultural leadership skills. 51. Strengthen confidence in themselves and their work. 52. Develop interpersonal skills in teamwork, communications, human relations, and social interaction.

ESSENTIAL CONTENT STANDARDS

ALL COURSES
GRADES 9-12

TOPICS	CONTENT STANDARDS
	Students will:
Leadership Development (continued)	53. Develop a competitive spirit through participation in individual and group events.
	54. Demonstrate skills, characteristics, and responsibilities of leaders and effective group members.
	55. Demonstrate skills for conducting successful meetings using parliamentary procedure practices.
	56. Prepare for effective citizenship and participation in our democratic society.
	57. Demonstrate communication skills. - Written communication - Oral communication
	58. Build cooperative attitudes through participation in activities and events. - Group - Community service

AGRISCIENCE

9TH GRADE
MINIMUM REQUIRED CONTENT

This course is for students who have expressed an interest in increasing their knowledge of agriscience technology. Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, agricultural issues, environmental science, environmental issues, biotechnology, leadership development, entrepreneurship, plant and/or soil science, computer applications, animal science, conservation and natural resources, and agricultural technology: woodworking and electricity. This course is designed to be taught as a one-hour class for 36 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Agricultural Accident Prevention FIRE PREVENTION	1. Demonstrate a knowledge of fire safety measures involving tractor and/or equipment fuels. 2. Demonstrate a knowledge of fire safety measures involving stored agricultural products and supplies. 3. Demonstrate a knowledge of the types of fires. 4. Demonstrate a knowledge of fire extinguishers. - Types - Storage and maintenance - Operation 5. Demonstrate a knowledge of proper fire fighting procedures.

AGRISCIENCE

9TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
CHEMICAL/GAS ACCIDENT PREVENTION	6. Identify the types of chemical and/or gasses used in agriculture/agriscience that are hazardous. - Pesticides - Gases Example: carbon monoxide
	7. Demonstrate a knowledge of the proper handling of pesticides. - Reading and following label directions - Transporting - Mixing and handling - Applying
AGRICULTURAL ECONOMICS/ MANAGEMENT	8. Explain the importance of economics to agriscience/agriculture.
	9. Describe the fundamental principles of economics. - Price, supply, and demand - Diminishing returns - Comparative advantage - Resource substitutions
	10. Describe the importance of management to agriscience/agriculture.
	11. Describe kinds of agriscience/agriculture management decisions.
	12. List the steps in decision-making.
	13. Use capital and credit wisely in agriscience/agriculture business management.

AGRISCIENCE

9TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ENTREPRENEURSHIP IN AGRISCIENCE/AGRICULTURE	14. Describe the principles of entrepreneurship in agriscience/agriculture.
PLANT AND/OR SOIL SCIENCE	15. Analyze the role of plants in the balance of the ecological system.
	16. Diagnose and control plant problems. - Insects - Diseases - Weeds
	17. Interpret and apply the results of a soil test analysis report.
	18. Describe the functions of the primary and secondary nutrients.
ANIMAL SCIENCE	19. Identify prominent livestock breeds.
	20. Compare breeding systems.
	21. Evaluate and rank animals within a group based on established criteria.
	22. Demonstrate an understanding of livestock marketing.
	23. Describe proper waste management/pollution prevention procedures.
CONSERVATION AND NATURAL RESOURCES	24. Relate conservation to natural resources. - Soil - Water - Forest - Wildlife

AGRISCIENCE

9TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ENVIRONMENTAL SCIENCE	25. Explain the role of fertilizers and pesticides in agriculture and the environment.
	26. Explain the importance of the proper application of fertilizer and pesticides on the environment. - Following label directions - Storing and disposing of containers
	27. Identify examples of technologies that have had damaging and/or good effects on the environment.
	28. Explain the ways of preventing loss of soil by water erosion.
ENVIRONMENTAL ISSUES WATER	29. Analyze the effects of agriscience/agriculture practices on ground water and surface water contamination. Examples: pesticides, fertilizers, animal waste
	30. Analyze the effect sedimentation is having on surface water.
	31. Discuss the use of water for animal production versus human consumption (priority).
LAND USE	32. Analyze the effects of agriscience/agriculture practices on soil contamination. Examples: pesticides, fertilizers, animal waste, agricultural fuels
	33. Analyze the effect of soil contaminates on plant growth.
	34. Explore the liability issues associated with contamination of the environment.

AGRISCIENCE

9TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
URBANIZATION	35. Analyze the effect of urbanization on land available for agricultural use.
DEFORESTATION	36. Analyze the effect that deforestation of land for agricultural use has on the environment.
BIOTECHNOLOGY IN AGRISCIENCE/AGRICULTURE	37. Explain the role of biotechnology in agriscience/ agriculture.
	38. Describe the applications of biotechnology in agriscience/agriculture.
	39. Discuss the benefits and risks of biotechnology in agriscience/agriculture.
	40. List important public concerns about the role of biotechnology in agriscience/agriculture and explain the basis of each of these concerns.
AGRICULTURAL WOOD TECHNOLOGY	41. Demonstrate ways to adjust and use portable and stationary power tools properly.
	42. Draw and interpret a scale plan.
	43. Calculate a bill of materials.
	44. Demonstrate the ability to use measuring tools.
	45. Demonstrate finishing and painting skills.
AGRICULTURAL ELECTRICITY	46. Develop an understanding of the principles of electricity.
	47. Discuss and apply electrical safety procedures.
	48. Demonstrate proficiency in wiring techniques.

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

Students enrolled in this course receive instruction and/or practice hands-on experiences in the areas of careers, safety, technological advancements, employability skills, SAEP, agricultural issues, international trade/global marketing, environmental issues, leadership development, forestry, soils, agricultural sales, computer applications, aquaculture, horticulture, and agricultural technology: metal fabrication, plumbing, and power mechanics (small engines). This course is designed to be taught as a one-hour class for 36 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
AGRICULTURAL ACCIDENT PREVENTION	
TRACTOR/EQUIPMENT	1. Observe safety rules and regulations when operating a tractor and/or other pieces of equipment. - Practice characteristics of a safe operator. - Wear personal protective equipment when appropriate. - Service, equip, and repair tractors/equipment properly. - Prevent overturn of tractor/equipment. - Use Slow Moving Vehicle (SMV) emblems on all tractors/equipment.
ELECTRICAL	2. Demonstrate a knowledge of safety measures involving overhead power lines.

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
INTERNATIONAL TRADE/ GLOBAL MARKETING	3. Examine international trade relating to marketing agriscience/agricultural products. - Define terminology. - Discuss the purpose and importance of international trade. - Discuss past and current international trade policies. - Recognize advantages/disadvantages of trade barriers. - Explain the need for trade management.
	4. Research one or more major international trade agreements that influence the marketing of agriscience/agricultural products.
	5. Describe the use of futures in marketing agriscience/ agricultural products on the global market.
	6. Examine the role of technology in international trade/global marketing. Examples: telecommunications, fax machines, computers, computer networks, fiber optics, lasers, satellites, international airlines and air routes
AGRIBUSINESS SALES	7. Examine a salesperson's role in agribusiness and/or society.
	8. Compare and contrast the effects of mental attitude on agribusiness sales. Examples: power of positive thinking, self-image, poor mental attitude, fear of failure, team work

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ENVIRONMENTAL ISSUES	
USE OF PUBLIC LANDS	9. Analyze the effect that the grazing of public lands has on the environment.
GLOBAL WARMING	10. Analyze the effect of the amount of methane gas being emitted by livestock on global warming.
	11. Analyze the effect of the amount of methane gas being emitted by agriscience/agricultural crops on global warming.
	12. Analyze the effect that deforestation has on global warming.
AIR QUALITY	13. Analyze the effect that agriscience/agricultural tools and machinery have on contributing to noise pollution.
	14. Analyze the effect that animal waste and facilities have on air quality.
	15. Analyze the impact that agriscience/agricultural chemical drift is having on air quality.
	16. Determine if agriscience/agriculture is helping to create more of a problem with acid rain.
SOIL SCIENCE	17. Contrast the major soil areas within Alabama. - Texture and structure - Water retention - Profiles - Drainage - Formation

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SOIL SCIENCE (continued)	18. Determine land use based on soil capability classes.
HORTICULTURE	19. Develop and understand a horticulture vocabulary.
	20. Explore the phases of horticulture. - Greenhouse management - Nursery management - Landscaping - Turfs and lawns - Pomology - Flower shop management
FORESTRY	21. Identify important forest trees.
	22. Determine major needs in caring for forests. - Fire control - Reforestation - Cutting practices - Controlling insects and diseases - Controlling undesirable species
	23. Discuss and/or demonstrate forestry management practices. - Harvesting - Marketing - Reforestation - Site preparation - Planting - Government and industry incentives

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
AQUACULTURE	24. Analyze an aquaculture farm from establishment to market. - Species of fish - Site preparation - Water analysis - Product development - Feeding - Harvesting - Marketing
AGRICULTURAL METAL FABRICATION	25. Demonstrate the proper procedures for joining metals by arc welding. - Metal preparation - Electrode selection - Polarity setting - Amperage setting - Electrode angle - Rate of travel - Establishment of arc length - Physical position 26. Demonstrate the proper procedures for joining metals by shielding gas welding. Examples: MIG, TIG 27. Demonstrate the proper procedures for using cutting equipment. Examples: plasma cutter, oxyacetylene cutter
AGRICULTURAL PLUMBING	28. Identify materials and equipment used in plumbing.

AGRITECHNOLOGY

10TH GRADE
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
AGRICULTURAL PLUMBING (continued)	29. Interpret a residential plumbing system plan. Example: develop bill of materials
	30. Assemble supply lines. - Galvanized pipe - Copper tubing - PVC pipe
	31. Maintain and repair plumbing systems. Examples: leaking faucets, clogged lines
AGRICULTURAL POWER MECHANICS	32. Differentiate between the principles of operation of small engines.
	33. Explain the systems of small gasoline engines. - Fuel system - Carburetion system - Compression system - Governing system - Ignition system
	34. Perform routine care and maintenance of small gasoline engines.
	35. Analyze and repair small gasoline engine problems.

AGRICULTURAL METAL FABRICATION

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, shielded metal arc welding, gas metal arc welding, oxyacetylene welding, cutting, and drilling and tapping. Agricultural Metal Fabrication is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
SHIELDED METAL ARC WELDING (SMAW)	1. Discuss the identification of the types of metals. 2. Demonstrate the proper procedure of joining metals by arc welding. - Metal preparation - Electrode selection - Polarity setting - Electrode angle - Rate of travel - Establishment of arc length - Physical position of weld Examples: vertical, horizontal, overhead, flat

AGRICULTURAL METAL FABRICATION

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SHIELDED METAL ARC WELDING (SMAW) (continued)	3. Join metals by arc welding. - Butt - Lap - Corner - Fillet or "T" joint
GAS METAL ARC WELDING (GMAW)	4. Demonstrate the proper procedure for joining metals by gas metal welding. Examples: MIG, TIG
OXYACETYLENE WELDING	5. Demonstrate the proper procedure for using oxy-acetylene equipment. - Equipment setup - Welding with added rod - Joining metal without a rod - Cutting - Heating and shaping metal
CUTTING	6. Demonstrate the proper procedure for using cutting equipment.
DRILLING AND TAPPING	7. Demonstrate the ability to perform a tap and die procedure.

AGRICULTURAL POWER MACHINERY I

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, operation, maintenance, service, and repair of small gasoline engines. Agricultural Power Machinery I is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Small Engines	1. Identify terms associated with servicing small engines. 2. Name solutions used to clean an engine. 3. Identify types of air cleaners. 4. Identify types of fuel filters. 5. Identify types of carburetors. 6. Demonstrate the ability to service small engines. - Clean and inspect crankcase. - Clean and inspect the cooling system. - Service air cleaner. Examples: dry element, oil bath

AGRICULTURAL POWER MACHINERY I

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SMALL ENGINES (continued)	- Service fuel system. Examples: paper filter, bowl, strainer - Change crankcase oil. - Check and set spark plugs. - Check service ignition. - Clean and service carburetor.
	7. Identify terms associated with overhauling small gasoline engines.
	8. Identify parts of a horizontal shaft engine.
	9. Identify special tools needed in overhauling small engines.
	10. List items found on engine identification plate.
	11. Describe the difference between a two-stroke cycle engine and a four-stroke cycle engine.
	12. Identify the parts of a valve.
	13. Identify the kinds of rings and the purpose of each kind.
	14. Demonstrate the ability to read a micrometer.
	15. Demonstrate the ability to overhaul small engines. - Disassemble, inspect, and reassemble a four-stroke cycle engine. - Reface valves and valve seats. - Replace rings.

AGRICULTURAL POWER MACHINERY II

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, types of agricultural machines and equipment, ignition, hydraulic and cooling systems, air cleaners, wheel bearings, equipment maintenance, and diesel engines. Agricultural Power Machinery II is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Machinery	1. Identify and select agricultural machines and equipment.
Diesel Engines	2. Explain the proper servicing of a diesel engine.
	3. Explain the proper procedures for fuel system maintenance.
Ignition Systems	4. Identify terms associated with ignition systems.
	5. Explain the purpose of an ignition system.
	6. Identify the components of an ignition system.
Cooling Systems	7. Identify terms associated with servicing the cooling system of a tractor.

AGRICULTURAL POWER MACHINERY II

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
COOLING SYSTEMS (continued)	8. Identify parts of a cooling system.
	9. Demonstrate the ability to flush and clean a cooling system.
AIR CLEANERS	10. Distinguish between the two common types of air cleaners. Examples: dry element, oil bath
	11. Demonstrate the ability to service air cleaners. - Remove and service dry element. - Service the oil bath cleaner.
WHEEL BEARINGS	12. Explain the importance of wheel bearings.
	13. Identify the components of a wheel assembly.
	14. Demonstrate the ability to service wheel bearings. - Disassemble the wheel bearing. - Clean bearings. - Pack and assemble the wheel bearing.
EQUIPMENT MAINTENANCE	15. Adjust, maintain, calibrate, and operate agricultural equipment.
	16. Explain the importance of painting tractors and equipment.
HYDRAULIC SYSTEMS	17. Explain the importance of properly servicing a hydraulic system.

AGRICULTURAL POWER MACHINERY II

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
HYDRAULIC SYSTEMS (continued)	18. List common types of filters of a hydraulic system. 19. Demonstrate the ability to service hydraulic systems. - Service the filter of a hydraulic system. - Service the screen of a hydraulic system. - Service the breather of a hydraulic system. - Change the fluid in a hydraulic system.

AGRICULTURAL STRUCTURES TECHNOLOGY I

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, design evaluation, and construction of agricultural structures. Agricultural Structures Technology I is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
PLAN AND CONSTRUCT AGRICULTURAL BUILDINGS	1. Select buildings by type of construction and identify structural parts. 2. Locate and layout buildings for efficiency and safety. 3. Select equipment for ventilation, environmental control, waste handling, and materials handling. 4. Utilize computer-assisted design techniques in planning. 5. Read plans or working drawings and plan for cost effectiveness. 6. Plan footings, foundations, and floors.

AGRICULTURAL STRUCTURES TECHNOLOGY I

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
PLAN AND CONSTRUCT AGRICULTURAL BUILDINGS (continued)	7. Select and install framing, doors, windows, sheeting, roofing, and insulating materials.
	8. Select and apply paints and preservatives.
SELECT AND USE SURVEYING EQUIPMENT	9. Level for grades, building layouts, profiles, and excavations.

AGRICULTURAL STRUCTURES TECHNOLOGY II

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, agricultural enclosures, electrical systems, concrete, and water systems. Agricultural Structures Technology II is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Plan and Construct Agricultural Enclosures	1. Plan location and arrangement of fences and corrals. 2. Select types and quality of fencing materials. 3. Select electric and solar fence controls and components. 4. Select types of end and corner construction and bracing. 5. Determine number and type of line posts. 6. Demonstrate the ability to construct fences and corrals.
Install, Service, and Maintain Electrical Systems	7. Analyze basic principles and terms of electricity.

AGRICULTURAL STRUCTURES TECHNOLOGY II

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
INSTALL, SERVICE, AND MAINTAIN ELECTRICAL SYSTEMS (continued)	8. Demonstrate use of electricity safety.
	9. Determine electrical needs and loads.
	10. Plan electrical installations.
	11. Use the National Electrical Code and local codes.
	12. Select wiring materials and supplies.
	13. Perform circuit wiring operations.
	14. Make minor electrical repairs and changes in electrical systems.
PLACE, FINISH, AND CURE CONCRETE SLABS AND STRUCTURES	15. Plan for site preparation and form construction.
	16. Demonstrate the ability to prepare forms and reinforce, pour, and finish concrete.
	17. Demonstrate use of masonry construction.
RECOGNIZE NON-TRADITIONAL STRUCTURAL BUILDING TECHNIQUES	18. Evaluate passive energy storage structures.
PLAN, ESTABLISH, AND MAINTAIN WATER MANAGEMENT SYSTEMS	19. Plan agricultural water systems.
	20. Install and maintain piping systems.
	21. Plan, install, and maintain irrigation systems.

AGRICULTURAL WOOD TECHNOLOGY

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, basic woodworking fundamentals and processes, assembly, preparation and finishing, and hand and power tools. Agricultural Wood Technology is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
WOODWORKING FUNDAMENTALS	1. Plan and design projects.
	2. Analyze and select wood and wood products.
	3. Demonstrate woodshop safety procedures.
BASIC PROCESS	4. Measure, layout, and rough-out materials.
	5. Plane and saw materials.
	6. Drill and bore building materials.
	7. Construct wood joints.
	8. Cut curves, irregular shapes, bevels, and chamfers.

AGRICULTURAL WOOD TECHNOLOGY

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
Assembly and Final Surface Preparation	9. Select, prepare, apply, clean, and clamp adhesives, cements, and glues.
	10. Apply mechanical fasteners and assemble wood.
	11. Sand and prepare wood for finishing.
	12. Select finishes and finish wood.
Hand and Power Tools	13. Select, adjust, and operate hand and power tools. Examples: circular saws, routers, sanding machines, band saws, measuring and marking tools
Cabinet/Furniture Making	14. Perform special procedures in fine woodworking.
	15. Construct furniture and cabinets.
	16. Construct drawers and doors.
Special Materials	17. Laminate and bend wood.
	18. Apply plastic laminates.
Pattern Making	19. Layout and construct patterns.

AGRIMARKETING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, free enterprise system, selecting and managing agrimarketing technology, marketing approach, and marketing products, services, and supplies. Agrimarketing is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Free Enterprise System	1. Describe the economic system in the United States. 2. Describe the important characteristics of free enterprise. 3. Explain how free enterprise is important to agrimarketing.
Selecting and Managing Agrimarketing Technology	4. Explain ways agrimarketing occurs in free enterprise. 5. Describe the role of information in agrimarketing. 6. Describe how the consumer influences agrimarketing.

AGRIMARKETING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SELECTING AND MANAGING AGRIMARKETING TECHNOLOGY (continued)	7. Explain the importance of management in agrimarketing.
	8. Describe the role of government in agrimarketing.
	9. Explain how associations are involved in agrimarketing.
MARKETING APPROACH	10. Explain common approaches in agrimarketing.
	11. Describe how government programs influence agrimarketing.
	12. Explain comparative advantage.
	13. Describe how value is added in agrimarketing.
	14. Explain factors in selecting marketing alternatives.
	15. Explain sales potential.
	16. Explain market share.
	17. Explain competition.
	18. Distinguish between selling and marketing.
MARKET PRODUCTS, SERVICES, AND SUPPLIES	19. Describe markets available for agriscience/ agriculture products, services, or supplies.
	20. Identify strategies to increase revenues in marketing.

AGRIMARKETING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
MARKET PRODUCTS, SERVICES, AND SUPPLIES (continued)	21. Describe the role of financial position and risk taking.
	22. Describe the role of consumer preferences in marketing.
	23. Identify the roles of producers in product quality.
	24. Describe the role of promotion in marketing.

ANIMAL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, breed identification, reproduction, health management, nutrition, and marketing. Animal Science is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Breed Identification	1. Distinguish prominent animal breeds giving their characteristics. Examples: beef, swine, sheep, horse, ratite, poultry
Reproduction	2. Compare breeding methods. Examples: artificial insemination, embryo transplant, natural, cross-breeding
Management	3. Evaluate and rank animals within a group. Examples: breeding, judging terms, marketing, oral reasons 4. Demonstrate an understanding of livestock marketing methods. Examples: auction, direct purchase

ANIMAL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ANIMAL HUSBANDRY	5. Explain the importance of animal nutrition. - Energy - Production - Repair - Regulation - Reproduction - Fattening
	6. Locate and describe the function of the parts of the digestive system.
	7. Discuss the benefits of controlling diseases in animals. - Parasite prevention - Treatment of diseases
	8. Discuss the economic benefits of approved animal health care practices. Examples: castration, dehorning, docking tails, immunization
FACILITIES	9. Compare various types of domesticated animal buildings and structures.

AQUACULTURE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, aquatic plants and animals, water management, production techniques, and management and marketing. Aquaculture is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
AQUATIC PLANTS AND ANIMALS	1. Develop an understanding of the fundamental biological principles of aquaculture species. 2. Describe the processes necessary to maximize the growth rate of aquacrops. 3. Develop an understanding of the importance of anatomy and physiology in aquaculture.
WATER MANAGEMENT	4. Determine the importance, unique properties, and content of water as related to aquaculture. 5. Develop an understanding of the sources of water for aquaculture. 6. Develop skills in managing water for aquaculture.

AQUACULTURE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
PRODUCTION TECHNIQUES	7. Describe the ways of disposing of wastewater.
	8. Describe the basic principles involved in fish production.
	9. Explain the process of producing and rearing seed.
	10. Describe the fundamentals of growing aquacrops in various structures and using various equipment.
	11. Control pests in aquacrops. - Diseases - Parasites - Predators - Trash fish
	12. Develop fundamental competencies in harvesting aquacrops.
	13. Develop a basic understanding of the role of processing in aquacrop production.
MANAGEMENT	14. Explain the manage ment processes important for aquafarms.
MARKETING	15. Develop introductory-level competencies in the marketing of aquacrops.

COMPUTER APPLICATIONS IN AGRISCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the selection, purchasing, operation, care and maintenance, and use of computers in agriscience/agriculture industries. Computer Applications in Agriscience is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Computers, Agriculture, and You	1. Evaluate computer applications for crop production and livestock production.
	2. Evaluate computer applications for nonfarm agriscience/agriculture.
	3. Determine general use of computers in agriscience/agriculture.
Introduction to Computers	4. Compare different types of computers.
	5. Examine the development of computers.
	6. Interpret computer terminology.
Inside the Computer	7. Illustrate the way a computer operates.

COMPUTER APPLICATIONS IN AGRISCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
INSIDE THE COMPUTER (continued)	8. Explain the function of computer components. Examples: microchips, main memory, CPU, auxiliary storage, modem
SELECTING AND PURCHASING A MICROCOMPUTER SYSTEM	9. Evaluate factors to consider in selecting a computer system and software.
CARE AND MAINTENANCE OF COMPUTERS	10. Determine proper location for computers. 11. Demonstrate the ability to maintain computers and diskettes.
COMPUTER OPERATION	12. Use computer operating systems software. Examples: DOS, Windows 13. Demonstrate file management procedures. Examples: save files, back-up files, copy diskettes
SPECIALIZED SOFTWARE	14. Determine uses for database software in agriscience/agriculture. 15. Evaluate general-purpose versus single-purpose software. 16. Select and use standard features of word processing software applicable to agriscience/agriculture. 17. Select and use standard features of desktop publishing software applicable to agriscience/agriculture.

COMPUTER APPLICATIONS IN AGRISCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SPECIALIZED SOFTWARE (continued)	18. Select and use standard features of communication software applicable to agriscience/agriculture.
	19. Select and use standard features of spreadsheet software applicable to agriscience/agriculture.
	20. Determine value of microcomputer-assisted accounting system in agriscience/agriculture.
	21. Use agriscience/agricultural accounting software.
	22. Use the microcomputer as a tool for school records. Examples: SAEP records, FFA and 4-H records, class assignments

ENTREPRENEURSHIP IN AGRISCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction in entrepreneurship opportunities in the agriscience/agriculture industry. Areas of instruction include careers, business planning, law, and management as related to agriscience/agriculture. Entrepreneurship is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Business Plan	1. Analyze the procedure for starting a business.
Business Law	2. Identify the laws and regulations that govern small business.
Business Management	3. Develop a business-relations management plan. - Staffing - Training procedure - Benefits - Performance evaluation
	4. Develop a marketing plan.
	5. Compare methods of business recordkeeping.
	6. Identify business risk.
Entrepreneurship Issues	7. Analyze problems facing entrepreneurship in agriscience/agriculture.

ENVIRONMENTAL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, state of the environment, ecosystems, environmental management concepts, environmental stewardship, and legal and ethical environmental issues. Environmental Science is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
State of Environment	1. Explain the difference between environmentalism and environmental science. 2. Define some of the important environmental sciences. 3. Discuss some of the major principles of ecology as an environmental science. 4. Explain what makes something a natural resource.
Environmental Management Concepts	5. Discuss the similarities and differences among the philosophies of exploitation, conservation, and preservation.

ENVIRONMENTAL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
ENVIRONMENTAL MANAGEMENT CONCEPTS (continued)	6. Differentiate between renewable and nonrenewable natural resources.
	7. Explain the concept of common properties and its implications.
	8. Discuss economic concepts that apply to environmental decision making.
	9. Describe how the environment sustains life and the role of sustainable resource use.
	10. Analyze the impact of human population on the environment.
	11. Describe the environment as home including ecosystems, habitats, and food webs.
ENVIRONMENTAL STEWARDSHIPS	12. Identify the types and effects of pollution on the environment.
	13. Explain the impact of habitat destruction on the environment.
	14. Discuss environmental laws, legislation, and regulations.
	15. Discuss environmental ethics, responsibility, and education.

FLORAL DESIGN AND INTERIORSCAPING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, design and arrangement of flowers, foliages, and accessories. The selection and care of plants used in interior locations are also included. Floral Design and Interiorscaping is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
FLORAL DESIGN	1. Analyze the role of flowers in past civilizations. 2. Describe the types of permanent flowers. 3. Demonstrate the ability to condition, store, and handle cut flowers and greenery. 4. Demonstrate the basic line designs of floral arrangements. Examples: symmetrical, asymmetrical 5. Design a bud-vase arrangement. 6. Demonstrate the major wiring techniques. 7. Construct boutonnieres and corsages.

FLORAL DESIGN AND INTERIORSCAPING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
FLORAL DESIGN (continued)	8. Design funeral tributes. Examples: standing spray, casket spray 9. Demonstrate the ability to wrap flowering pot plants.
INTERIORSCAPING	10. Describe good indoor plant growing conditions. 11. List Integrated Pest Management (IPM) cultural and biological control strategies. 12. Differentiate between plant growth and plant maintenance. 13. Describe growing media amendments. 14. Describe foliage plants that are low-light tolerant. 15. Diagnose and control insect pests found on foliage plants.
BUSINESS MANAGEMENT	16. Prepare plants and merchandise for marketing. - Formulating prices - Labeling plants and merchandise - Pricing plants and merchandise - Displaying plants and merchandise 17. Demonstrate managerial skills in successfully operating a floral business. - Scheduling work - Handling customer complaints - Keeping records - Inventorying and ordering - Advertising

FLORAL DESIGN AND INTERIORSCAPING

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
BUSINESS MANAGEMENT (continued)	18. Conduct sales transactions. - Cash register, calculator, billing machine and charge card equipment operation - Salesmanship - Telephone orders - Floor sales

FORESTRY

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, careers, tree identification, silviculture practices, reforestation, forest protection, measurement, products, timber harvesting, and marketing and management. Forestry is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Forest Tree Identification	1. Explain the difference between hardwoods and softwoods. 2. Identify important species of forest trees.
Silviculture Practices	3. Explain the methods of cutting to improve a forest. - Harvest cutting - Intermediate cutting - Thinning - Pruning
Reforestation	4. Explain the two methods of reforestation. - Natural reforestation - Artificial reforestation

FORESTRY

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
REFORESTATION (continued)	5. Explore the factors that must be considered before establishing a forest. - Soil preparation - Species to plant - Obtaining, caring for, and planting of seedlings - Time to plant - Spacing and site recommendations
	6. Demonstrate the hand planting method of planting seedlings.
FOREST PROTECTION	7. Describe the types of forest fires and explain the methods of controlling them.
	8. Identify the major insects that damage forest trees in Alabama and demonstrate methods of controlling them.
	9. Identify undesirable plant species and explain methods of controlling them.
FOREST MEASUREMENT	10. Determine forest measurements.
	11. Determine direction by using a compass.
	12. Estimate standing tree diameter at breast height (DBH). - Tree scale stick - Diameter tape
	13. Determine volumes of forest products. Examples: sawlogs, pulpwood

FORESTRY

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
FOREST MEASUREMENT (continued)	14. Determine site index of standing timber.
	15. Estimate volume of standing timber by cruising.
	16. Measure growth and determine age of trees by using an increment borer.
FOREST PRODUCTS	17. Select marketable trees and classify them according to use. Examples: lumber, pulpwood, posts, poles, pilings
	18. Explain the classification and grading of lumber.
TIMBER HARVESTING AND MARKETING	19. Demonstrate ways to adjust, operate, and maintain a chain saw.
	20. Identify available markets for forestry products.
	21. Complete a forest-products sale agreement.
	22. Select and mark trees to be felled.
	23. Identify sources of professional help in marketing forest products.
FOREST MANAGEMENT	24. Explain the various management objectives for forests. - Timber - Wildlife - Recreation - Aesthetics - Multiple use

GOLF COURSE MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, golf course design, and maintenance practices necessary to maintain a golf course. Golf Course Management is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
HISTORY	1. Discuss the history of golf courses. 2. Discuss the different types of golf courses.
DESIGN	3. Understand the basic design and layout features of a golf course. 4. Discuss the procedures for constructing a USGA Specification golf green.
TURF GRASSES	5. Identify characteristics of turf grasses suitable for golf courses. 6. Discuss environmental factors that effect turf grass growth. Examples: light, temperature, water, traffic

GOLF COURSE MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
TURF GRASSES (continued)	7. Discuss cultural practices in maintaining turf grasses.
	8. Diagnose and control turf grass problems.
IRRIGATION SYSTEMS	9. Identify types of sprinkler systems.
	10. Develop an understanding of the design and layout of an irrigation system.
	11. Develop an understanding of the installation and maintenance of an irrigation system.
TOOLS AND EQUIPMENT	12. Identify and safely use tools and equipment associated with golf course construction and maintenance.
MAINTENANCE PRACTICES	13. Describe the maintenance practices performed on greens, tees, fairways, sand traps (bunkers), and roughs.

HOME MAINTENANCE AND IMPROVEMENTS

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction in improving and maintaining the urban or rural home and adjacent buildings. Students analyze repair needs and use approved safety techniques. Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, tools, equipment and materials, plumbing, electrical, heating and cooling, and interior and exterior finishing. Home Maintenance and Improvements is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Tools, Equipment, and Materials	1. Identify and safely use tools and equipment associated with home maintenance and improvement.
Plumbing Systems	2. Repair and maintain plumbing systems.
Electrical Systems	3. Understand electrical safety.
	4. Replace outlets, switches, and light fixtures.
Heating and Cooling Systems	5. Understand the importance of a properly maintained filter.
	6. Understand the importance of maintaining fireplaces, wood heaters, and chimneys.

HOME MAINTENANCE AND IMPROVEMENTS

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
INTERIOR AND EXTERIOR FINISHING	7. Select and apply paints, stains, and preservatives. - Calculate square footage. - Determine coverage. - Prepare surface. - Apply paint, stain, or preservative. 8. Calculate, select, and apply floor covering. Examples: carpet, vinyl, tile 9. Demonstrate the ability to locate studs within walls. 10. Repair dry wall. 11. Adjust and maintain doors and windows. - Hardware - Weather striping 12. Estimate roof repair cost. 13. Understand the importance of keeping gutters and downspouts clean. 14. Use pre-mixed concrete. 15. Plan a pest-control program.

HORTICULTURE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, basic plant science, plant propagation, soils and media mixtures, plant identification, and greenhouse crop production. Horticulture is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Basic Plant Science	1. Analyze the role of plants in the ecological system. 2. Produce a healthy seedling through proper germination techniques. 3. Analyze the effects of each environmental factor on plant growth. 4. Describe the function of primary nutrients and the symptoms of their deficiencies. - Nitrogen - Phosphorus - Potassium

HORTICULTURE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
Basic Plant Science (continued)	5. Describe the function of the secondary and trace nutrients.
	6. Interpret and apply the results of a soil test analysis report.
Plant Propagation	7. Demonstrate the ability to propagate plants by various methods. Examples: stem cuttings, leaf bud cuttings, layering, division, separation
Media Mixtures	8. Differentiate among the types of media.
	9. Adjust media conditions by the addition of additives.
	10. Prepare media mixtures for containers.
	11. Determine and adjust the media pH.
Plant Identification	12. Identify horticulture plants by common name.
Greenhouse Crop Production	13. Control environmental conditions for proper plant growth. Examples: light, water, temperature
	14. Diagnose and control plant problems. - Insects - Diseases - Weeds
	15. Produce and market greenhouse crops.

LEADERSHIP AND CAREER DEVELOPMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction in developing agricultural leadership, citizenship, and cooperation. The course includes topics in principles of leadership, the decision-making process, human relations, communication skills, organizational management, public relations, leading individuals and groups, personal development, and transition to work. Leadership and Career Development is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Principles of Leadership	1. Identify principles and essential traits of leadership.
	2. Identify opportunities for leadership.
Decision-Making Process	3. Apply the steps of the problem-solving decision-making process.
Human Relations	4. Identify basic human needs.
	5. Describe the importance of practicing proper etiquette.
Communication Skills	6. Discuss types of communication. - Verbal - Written - Nonverbal

LEADERSHIP AND CAREER DEVELOPMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
COMMUNICATION SKILLS (continued)	7. List causes for breakdown in communication.
	8. Follow oral and written directions.
	9. Give oral and written directions.
	10. Identify the value of public speaking.
	11. Plan, deliver, and evaluate a speech.
ORGANIZATIONAL MANAGEMENT	12. Discuss the value of a constitution and by-laws to an organization.
	13. Identify the duties and responsibilities of officers.
	14. Apply the practices of parliamentary procedure.
	15. Organize and conduct a meeting.
	- Group - Committee
PUBLIC RELATIONS	16. Identify the purposes of a public relations program.
	17. Prepare materials for a public relations program.
	Examples: T.V., newspaper, radio
	18. Analyze current issues and trends in agriscience/agriculture.
	Examples: agricultural, environmental, agricultural technology, animal, agriscience/agricultural careers, economy and trade, agricultural policy, food safety

LEADERSHIP AND CAREER DEVELOPMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
LEADING INDIVIDUALS AND GROUPS	19. Demonstrate skills for conducting successful meetings, using parliamentary procedure practices.
	20. Discuss the importance of democratic group leadership.
PERSONAL DEVELOPMENT	21. Analyze the effect of self-concept on leadership.
	22. Discuss the importance of goal setting.
TRANSITION TO WORK SKILLS	23. Develop skills in getting a job. - Resources - Applications - Interviews
	24. Develop financial management skills. - Preparing a budget - Managing a checking account - Selecting a financial institution

PLANT AND SOIL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, basic plant science, plant structures, growth, propagation, nutrition, processes, and soils. Plant and Soil Science is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
BASIC PLANT SCIENCE	1. Analyze the role of plants in the balance of the ecological system.
PARTS OF A PLANT	2. Identify major parts of plants and seeds and give their function. 3. Give the function of the common classes of plant tissues. - Meristematic tissue - Permanent tissue - Simple tissue (epidermal, parenchyma, collenchyma, sclerenchyma) - Complex tissues (xylem, phloem) 4. Describe and give the functions of exterior and interior plant stem parts.

PLANT AND SOIL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
PARTS OF A PLANT (continued)	5. Identify and give the function of each part of a leaf.
	6. Identify and give the function of the parts of a flower.
PLANT PROPAGATION	7. Demonstrate the ability to propagate plants by vegetative methods.
	8. Demonstrate the ability to propagate plants by the sexual method.
PLANT NUTRITION	9. Describe the functions of primary nutrients and the symptoms of the deficiencies. - Nitrogen - Phosphorus - Potassium
	10. Describe the function of the secondary and trace nutrients.
	11. Demonstrate the ability to collect and prepare a soil test.
	12. Interpret the results of a soil test analysis report.
PLANT PROCESSES	13. Name requirements for photosynthesis.
	14. Explain the process of transpiration and respiration.
SOILS	15. Identify the major soil areas in Alabama.
	16. Recognize the layers of soil in a soil profile.

PLANT AND SOIL SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SOILS (continued)	17. Determine the texture of different soil samples.
	18. Demonstrate the ability to determine soil drainage.
	19. Determine the land class for a given plot of land and select crops compatible for soil conditions.
	20. Explain the relationship of soil pH to plant growth.
	21. Demonstrate an understanding of the factors that affect the degree of acidity or alkalinity of a soil.
	22. Demonstrate the ability to determine the slope of a land.
CROP AND PLANT PRODUCTION	23. Discuss the types of tillage practices. Examples: no-till, minimum till
	24. Diagnose and control plant pest problems. Examples: insects, weeds, diseases
SOIL AND WATER CONSERVATION	25. Determine the influence of water and soil on crop yields.

POULTRY SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, selection, feeding, management, housing and equipment, marketing, and diseases and parasites of poultry. Poultry Science is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Selection	1. Describe the nature and economic importance of the poultry industry.
	2. Identify common breeds of poultry.
	3. Explain the selection of poultry for production.
Feeding	4. Describe accepted feeding practices for different kinds of poultry.
Management	5. Describe approved management practices for different kinds of poultry.
Housing and Equipment	6. List housing and equipment requirements for various kinds of poultry enterprises.
Marketing	7. Summarize the production and price trends in poultry and eggs.

POULTRY SCIENCE

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
MARKETING (continued)	8. Describe the methods of marketing poultry and eggs.
DISEASES AND PARASITES	9. Identify the symptoms of common poultry diseases.
	10. Identify the symptoms of common parasites of poultry.
	11. Establish a disease and parasite control program for poultry.

TURF AND LANDSCAPE MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, basic plant science, soils and media mixtures, plant identification, landscape design, establishment, and maintenance, turf and lawn establishment and maintenance, and business management practices. Turf and Landscape Management is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Basic Plant Science	1. Analyze the role of plants in the balance of the ecological system. 2. Describe the function of primary nutrients and the symptoms of their deficiencies. 3. Describe the function of the secondary and trace nutrients. 4. Interpret and apply the results of a soil test analysis report. - Soil testing procedures - Fertilizer ratios - Types of fertilizers - Methods of application

TURF AND LANDSCAPE MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SOIL AND MEDIA MIXTURES	5. Differentiate among the types of soils.
	6. Adjust soil conditions by the addition of soil additives.
PLANT IDENTIFICATION	7. Identify turf and landscape plants by common name.
LANDSCAPE DESIGN, ESTABLISHMENT, AND MAINTENANCE	8. Develop landscape skills. - Landscape design - Site preparation - Layout
	9. Demonstrate the correct way to plant landscape plants.
	10. Maintain an established landscape planting. - Fertilizing - Watering - Pruning - Mulching
	11. Diagnose and control landscape plant problems. - Insects - Diseases - Weeds

TURF AND LANDSCAPE MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
TURF AND LAWN ESTABLISHMENT AND MAINTENANCE	12. Establish a turf and/or lawn area. - Selecting types of grass and/or ground cover - Preparing the soil - Selecting a method of establishing a lawn
	13. Maintain an established turf and/or lawn area.
	14. Diagnose and control turf and/or lawn problems. - Insects - Diseases - Weeds
BUSINESS MANAGEMENT	15. Demonstrate managerial skills in successfully operating a landscape or turf business. - Scheduling work - Estimating a job - Handling customer complaints - Keeping records - Inventorying and ordering - Advertising

WILDLIFE AND RECREATION MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

Students receive instruction and/or participate in hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, hunter education, wildlife identification, management, and outdoor recreation. Wildlife and Recreation Management is a specialized semester course designed to be taught in 18 weeks.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
HUNTER EDUCATION	1. Review state and federal laws and policies concerning wildlife, including hunting leases. 2. Demonstrate the safe handling of firearms. 3. Review procedures of survival and first aid.
WILDLIFE IDENTIFICATION	4. Define the meaning of wildlife. 5. Classify wildlife and habitat. - Size - Shape - Color - Habitat 6. Identify animal species, fish, fowl, and exotic game.

WILDLIFE AND RECREATION MANAGEMENT

SPECIALIZED SEMESTER COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
MANAGEMENT	7. Explore water, food, and cover requirements of wildlife.
	8. Discuss the management of wildlife populations.
	9. Discuss the management of fish populations.
OUTDOOR RECREATION	10. Identify outdoor recreational enterprises.
	11. Identify methods of developing and managing outdoor recreational enterprises.
WILDLIFE ISSUES	12. Discuss the impact of agriculture, residential growth, and industry on wildlife habitat.
	13. Discuss the ecological, economic, and aesthetic benefits of wildlife and recreation management.

Two-Year Specialized Courses
(Two-Hour Block/Year)

Agritechnology Construction
11th-12th Grades

- Career Opportunities
- Technological Advancements
- Employability Skills
- Health and Safety
- SAEP
- Computers in Agriscience
- Agricultural Issues
- Leadership Development
- Power Tools and Equipment (Stationary and Portable)
- Hand Tools
- Building Site Preparation
- Blueprint Reading
- Masonry Construction
- Floor and Wall Framing
- Roofing and Ceiling
- Stair and Step Construction
- Electrical Wiring
- Plumbing Installation
- Insulation of Structures
- Exterior and Interior Finishing
- Finishing Surfaces

Forestry and Wildlife Science
11th-12th Grades

- Career Opportunities
- Technological Advancements
- Employability Skills
- Health and Safety
- SAEP
- Computers in Agriscience
- Agricultural Issues
- Leadership Development
- Silviculture Practices
- Forest Protection
- Forest Entomology
- Forest Pathology
- Forestry Herbicides
- Forest Measurements
- Dendrology/Physiology
- Timber Harvesting and Marketing
- Chainsaw Safety and Operation
- Arboriculture
- Tools and Equipment
- Wildlife Science and Ecology
- Utilization
- Soil Science

Horticulture/Floriculture
11th-12th Grades

- Career Opportunities
- Technological Advancements
- Employability Skills
- Health and Safety
- SAEP
- Computers in Agriscience
- Agricultural Issues
- Leadership Development
- Basic Plant Science
- Plant Propagation
- Soil and Media Mixtures
- Plant Identification
- Greenhouse Crop Production
- Nursery Crop Production
- Plant Pest Control
- Landscape, Design, Establishment, and Maintenance
- Turf and Lawn Establishment and Maintenance
- Floral Design
- Horticulture/Floriculture Business Management
- Servicing and Maintaining Equipment and Facilities

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AGRITECHNOLOGY CONSTRUCTION

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

This is a two-year course that enables students to develop or obtain knowledge and understanding of the principles and concepts essential for the construction and maintenance of agricultural buildings and facilities. Students develop mental and manipulative skills necessary for the application of these principles.

TOPICS	CONTENT STANDARDS
	Students *will:*
Essential Standards Career Opportunities Technological Advancements Employability Skills Health and Safety Supervised Agricultural Experience Program Computers in Agriscience Agricultural Issues Leadership Development	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
Power Tools and Equipment (Stationary and Portable)	1. Adjust and operate power tools. Examples: table saw, jointer, planer, drill press, portable drill, router, disc grinder, circular saw, jig saw, portable belt and vibrator sanders, portable planes
Hand Tools	2. Identify and use hand tools. Examples: layout tools, edge-cutting tools, teeth-cutting tools
Building Site Preparation	3. Lay out a building site according to architectural drawings and building codes.
Blueprint Reading	4. Interpret building symbols and scale.
Masonry Construction	5. Explain the process of mixing, pouring, and finishing concrete. 6. Hand-cut and/or saw masonry units.

AGRITECHNOLOGY CONSTRUCTION

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
MASONRY CONSTRUCTION (continued)	7. Join units of concrete, clay, and similar materials with mortar.
FLOOR AND WALL FRAMING	8. Lay out, frame, and install a built-up sill.
	9. Lay out and assemble a wall frame to include rough openings.
ROOFING AND CEILING	10. Layout and construct roof and ceiling systems.
	Examples: trusses, joists, rafters
	11. Select and calculate the cost of decking and roofing materials.
	12. Install decking and cover roof.
STAIR AND STEP CONSTRUCTION	13. Lay out and cut stair and step stringers.
	14. Install risers, treads, and rails.
ELECTRICAL WIRING	15. Identify electrical terms and symbols from wiring plans.
	16. Locate and install light fixtures.
	17. Install a service-entrance main panel.
	18. Install circuits and attach wiring devices.
	19. Demonstrate the ability to follow electrical safety codes.
PLUMBING INSTALLATION	20. Install a plumbing system.

AGRITECHNOLOGY CONSTRUCTION

TWO -YEAR SPECIALIZED COURSE
GRADES 11-12

TOPICS	CONTENT STANDARDS
	Students will:
INSULATION OF STRUCTURES	21. Select and install insulation.
	Examples: batts, rolls
EXTERIOR AND INTERIOR FINISHING	22. Install exterior doors and windows.
	23. Install garage doors.
	24. Install exterior trim.
	25. Cut and install solid wood paneling.
	26. Demonstrate finishing carpentry skills.
	Examples: hanging doors, applying wall covering
FINISHING SURFACES	27. Sand and clean surfaces.
	28. Select and apply wood finishes.
	Examples: paint, stains

FORESTRY AND WILDLIFE SCIENCE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

This two-year course is designed primarily to enable students to develop understandings, skills, and competencies essential for success in forestry production and processing either as owner-operators or as wage earners. The course includes instruction and/or hands-on activities in the areas of careers, safety, technological advancements, employability skills, SAEP, computer applications, agricultural issues, leadership development, basic forestry, applied silviculture, forest measurements, forest products, reforestation, and others.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
SILVICULTURE PRACTICES	1. Discuss, explain, and observe the type and purposes of intermediate cuts, harvest cuts, and best management practices. - Intermediate cuts * Pre-commercial * Thinning * Cleaning * Salvage * Sanitation * Release * Improvement - Harvest cuts * Clearcut * Seedtree * Shelterwood * Selection

FORESTRY AND WILDLIFE SCIENCE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SILVICULTURE PRACTICES (continued)	- Best management practices (BMP's) * Stream Management Zones (SMZs) * Road conservation and management practices - Timberland improvement - Pollution prevention - Stream protection
	2. Demonstrate ways to care for seedlings upon receipt from nursery.
	3. Explain the methods of reforestation. - Regeneration * Natural * Artificial - Site preparation * Mechanical * Chemical * Prescribe Fire - Calculation of number of trees needed and cost - Seedling care - Planting - Stand evaluation
FOREST PROTECTION	4. Demonstrate a knowledge of fire behavior, wildfire control, and the proper use of prescribe fire. - Fire chemistry and behavior - Types of forest fires - Parts of a wildfire - Weather factors and their effect on a wildfire - Prescribed burning

FORESTRY AND WILDLIFE SCIENCE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
FOREST ENTOMOLOGY	5. Identify major insects that damage forest trees in Alabama.
	6. Explain and demonstrate control measures for forest insects.
FOREST PATHOLOGY	7. Identify and describe forest tree diseases and their control.
FORESTRY HERBICIDES	8. Understand the importance of safe use of forest chemicals.
FOREST MEASUREMENTS	9. Locate land corners and boundaries and determine acreage using the legal description, topographic maps, and hand compass. - Longitude and latitude - Survey systems * U.S. * Alabama - United States Public Land survey system - Legal descriptions - Map symbols - Map scaler - Boundary location - Acreage calculation - Land location
	10. Demonstrate the ability to compass survey.
	11. Demonstrate the ability to use a tree scale strike.
DENDROLOGY/PHYSIOLOGY	12. Identify the parts of a tree and its functions.
	13. Identify valuable species of forest trees.

FORESTRY AND WILDLIFE SCIENCE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
TIMBER HARVESTING AND MARKETING	14. Recognize forest dangers and the symptoms of heat injuries.
	15. Develop a timber harvesting plan.
	16. Select and mark trees to be felled.
CHAINSAW SAFETY AND OPERATION	17. Develop safe operating techniques for chainsaws.
ARBORICULTURE	18. Describe the various jobs in tree care.
	19. Identify, explain the use of, and tie common knots.
	20. Demonstrate proper care of equipment.
	21. Demonstrate proper pruning procedures.
TOOLS AND EQUIPMENT	22. Use and identify forest tools and equipment.
WILDLIFE SCIENCE AND ECOLOGY	23. Describe habitat requirements for wildlife.
	24. Explain how forest management activities affect habitat.
	25. Explain how habitat can be improved.
UTILIZATION	26. Describe the importance and function of sawmill power equipment.
SOIL SCIENCE	27. Determine chemical and physical nature of soil and factors affecting soil properties and usage.

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

This two-year course offers units of instruction and/or hands-on activities in the developing of skills, competencies, and understandings needed for successful employment or establishment in production, management, and sales and service aspects in horticulture/floriculture enterprises. The course includes instruction in greenhouse, nursery, or garden center management; or it may provide for specialization in plant growth, propagation, landscaping, and turf establishment and maintenance. Floriculture deals with flower production, floral design, management, and sales and/or services in a floral shop.

TOPICS	CONTENT STANDARDS
	Students will:
ESSENTIAL STANDARDS CAREER OPPORTUNITIES TECHNOLOGICAL ADVANCEMENTS EMPLOYABILITY SKILLS HEALTH AND SAFETY SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM COMPUTERS IN AGRISCIENCE AGRICULTURAL ISSUES LEADERSHIP DEVELOPMENT	*The teacher will select standards appropriate for this course from the Essential Content Standards, pages 23-30.*
BASIC PLANT SCIENCE	1. Analyze the role of plants in the balance of the ecological system. 2. Produce a healthy seedling through proper germination techniques. 3. Analyze the effects of environmental factors on plant growth. 4. Describe the function of primary nutrients and the symptoms of their deficiencies. - Nitrogen - Phosphorus - Potassium

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
BASIC PLANT SCIENCE (continued)	5. Describe the function of the secondary and trace nutrients.
	6. Interpret and apply the results of a soil test analysis report. - Soil-testing procedures - Fertilizer ratios - Types of fertilizers - Methods of application
PLANT PROPAGATION	7. Maintain propagation structures.
	8. Develop managerial skills pertaining to the successful operation of a plant propagation enterprise. - Choice of propagation media - Method(s) of propagation - Accurate propagation records - Environmental methods control
	9. Demonstrate the ability to propagate by selected methods. - Stem cuttings - Leaf bud cuttings - Budding - Grafting - Layering - Division - Separation - Root cuttings
SOIL AND MEDIA MIXTURES	10. Differentiate among the types of soils.

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
SOIL AND MEDIA MIXTURES (continued)	11. Adjust soil conditions by the addition of soil additives.
	12. Prepare media mixtures for containers. - Soil mixtures - Mixtures without soil - Sterilization or fumigation
	13. Determine and adjust the soil or media pH.
PLANT IDENTIFICATION	14. Identify horticulture plants by industry-accepted name.
GREENHOUSE CROP PRODUCTION	15. Control environmental conditions for proper plant growth. Examples: light, temperature, water
	16. Produce and market greenhouse crops. - Cut flowers - Pot plants Examples: flowering, foliage
	17. Diagnose and control plant problems. - Insects - Diseases - Weeds
	18. Select the method for watering greenhouse plants. Examples: hand, chapin, perimeter

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
GREENHOUSE CROP PRODUCTION (continued)	19. Select the type of fertilizer and method of application for fertilizing greenhouse plants.
	20. Construct specialty items using plants in the greenhouse. Examples: hanging baskets, dish gardens, floor planters, terrariums
NURSERY CROP PRODUCTION	21. Select the type of fertilizer and method of application for fertilizing nursery crops. - Field-grown crops - Container-grown crops
	22. Select the method for watering nursery crops. - Field-grown crops - Container-grown crops
	23. Diagnose and control nursery crop pests. - Weeds - Insects - Diseases
	24. Produce nursery crops in containers and/or in a field. - Liner preparation - Crop maintenance Examples: fertilize, irrigate, thin, prune, control pests
	25. Harvest field-grown crops. Examples: hand or mechanical digging, ball and burlap, bare-root

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
NURSERY CROP PRODUCTION (continued)	26. Demonstrate the ability to care for harvested bare-root nursery plants. - Labeling and grading - Heeling-in - Bagging
	27. Process and ship nursery orders.
PLANT PEST CONTROL	28. Apply pesticides to ornamental plants. - Identifying pests - Selecting pesticides - Reading and following labels - Selecting methods of application - Practicing safety procedures
	29. Specify the proper way(s) to label, store, and dispose of pesticides and empty containers.
	30. Demonstrate the proper way to clean and store pesticide application equipment.
LANDSCAPE DESIGN, ESTABLISHMENT, AND MAINTENANCE	31. Develop landscaping skills. - Landscape design - Site preparation - Layout
	32. Demonstrate the correct way to plant landscape plants. Examples: shrubs, trees, vines, ground covers, herbaceous plants

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
LANDSCAPE DESIGN, ESTABLISHMENT, AND MAINTENANCE (continued)	33. Maintain an established landscape planting. - Fertilizing - Watering - Pruning - Winterizing - Mulching
	34. Diagnose and control landscape plant problems. - Weeds - Diseases - Insects
TURF AND LAWN ESTABLISHMENT AND MAINTENANCE	35. Establish a turf and lawn area. - Selecting types of grasses and/or ground covers - Preparing soil - Selecting method of establishing a lawn
	36. Maintain an established turf and lawn area.
	37. Diagnose and control turf and lawn problems. - Weeds - Diseases - Insects
FLORAL DESIGN	38. Design funeral tributes. Examples: standing spray, casket cover
	39. Demonstrate the ability to condition, store, and handle cut flowers and greenery.

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
Floral Design (continued)	40. Construct boutonnieres and corsages.
	41. Demonstrate the ability to wrap flowering pot plants.
	42. Design a bud vase arrangement.
	43. Demonstrate the basic line designs of floral arrangements. Examples: symmetrical, asymmetrical
	44. Demonstrate the ability to inventory plants, arrangements, and supplies.
	45. Demonstrate the ability to tint floral products. Examples: spray-tint flowers, dip-dye flowers
Horticulture/Floriculture Business Management	46. Prepare plants and merchandise for marketing. - Formulating price - Labeling plants and merchandise - Pricing plants and merchandise - Displaying plants and merchandise
	47. Demonstrate managerial skills in successfully operating a horticulture business. - Scheduling work - Estimating job costs - Handling customer complaints - Keeping records and accounts - Inventorying and ordering - Advertising

HORTICULTURE/FLORICULTURE

TWO-YEAR SPECIALIZED COURSE
GRADES 11-12
MINIMUM REQUIRED CONTENT

TOPICS	CONTENT STANDARDS
	Students will:
HORTICULTURE/FLORICULTURE BUSINESS MANAGEMENT (continued)	48. Conduct sales transactions. - Cash register, calculator, billing machine, and charge-card equipment operation - Salesmanship - Telephone orders - Floor sales
SERVICING AND MAINTAINING EQUIPMENT AND FACILITIES	49. Perform maintenance jobs on horticulture and/or floriculture facilities. Examples: painting, electrical repairs, glazing, plumbing, carpentry 50. Maintain hand tools. Examples: clean, repair, sharpen 51. Demonstrate the ability to service small gasoline engines. Examples: change oil, change spark plugs

APPENDIX A

DIPLOMA REQUIREMENTS

Effective for students who begin the ninth grade in the 1996-97 school year, in order to earn an Alabama high school diploma, students must successfully complete the High School Basic Skills Exit Exam and earn the requirements for the Alabama High School Diploma or the Alabama High School Diploma with Advanced Academic Endorsement. A local board of education may establish requirements for receipt of additional endorsements, but any endorsement must include those requirements for the Alabama High school diploma.

Alabama High School Diploma

	Credits
English Language Arts	4
Four credits to include the equivalent of:	
English 9	1
English	1
English 11	1
English 12	1
Mathematics	4
Four credits to include the equivalent of:	
Algebra I	1
Geometry	1
Science	4
Four credits to include the equivalent of:	
Biology	1
A Physical Science	1
Social Studies	4
Four credits to include the equivalent of:	
Grade 9	1
World History	1
U. S. History	1
Government	½
Economics	½
Physical Education	1
Health Education	½
Fine Arts	½
Computer Applications*	½
Electives	5 ½
Local boards must offer foreign languages, fine arts, physical education, wellness education, vocational and technical preparation, and driver education as electives.	
TOTAL	24

* May be waived if computer literacy, keyborading skills, and introductory applications are verified by qualified staff at the high school. The designated one-half credit will then be added to the electives, making a total of six electives.

Alabama High School Diploma with Advanced Academic Endorsement

Credit earned through applied academic courses or embedded credit situations will not satisfy the core curriculum requirements for a diploma with an advanced endorsement.

	Credits
English Language Arts	4
Four credits to include the equivalent of:	
English 9	1
English	1
English 11	1
English 12	1
Mathematics	4
Must include advanced levels of:	
Algebra II with Trigonometry	1
Science	4
Must include advanced levels of:	
Biology	1
A Physical Science	1
Additional Life and/or Physical Science	2
Social Studies	4
Four credits to include the equivalent of:	
Grade 9	1
World History	1
U. S. History	1
Government	½
Economics	½
Physical Education	1
Health Education	½
Fine Arts	½
Computer Applications*	2
Electives	3 ½
Local boards must offer foreign languages, fine arts, physical education, wellness education, vocational and technical preparation, and driver education as electives.	
TOTAL	24

* May be waived if computer literacy, keyborading skills, and introductory applications are verified by qualified staff at the high school. The designated one-half credit will then be added to the electives, making a total of four electives.

APPENDIX B

GUIDELINES FOR LOCAL TIME REQUIREMENTS AND HOMEWORK

In accordance with # 1.1.5 (Action Item #F-) adopted by the Alabama State Board of Education on February 23, 1984, which directs the State Courses of Study Committee to include time-on-task requirements in the State Courses of Study, the following recommendations are made:

- Local school systems should develop time allocations that reflect a balanced school day. In addition, they should account for the law related to time requirements (§16-1-1, Ala. Code, 1975); that is, the total instructional time of each school day in all schools and at all grade levels shall not be less than 6 hours or 360 minutes, exclusive of lunch periods, recess, or time used for changing classes.

- The recommended list below resulted from considerations of a balanced educational program. Any deviations established at the local level should be accompanied by rationales that ensure balance and are compatible with the developmental characteristics of students.

NOTE: Time requirements provide a general plan and are to be implemented with a flexibility that encourages interdisciplinary approaches to teaching.

SUBJECT AREA	GRADES 1-3	GRADES 4-6
Language Arts	150 minutes daily	120 minutes daily
Mathematics	60 minutes daily	60 minutes daily
Science	30 minutes daily	45 minutes daily
Social Studies	30 minutes daily	45 minutes daily
Physical Education	30 minutes daily *	30 minutes daily *
Health	60 minutes weekly	60 minutes weekly
Art	60 minutes weekly	60 minutes weekly
Music	60 minutes weekly	60 minutes weekly
Computer Educaton	60 minutes weekly	60 minutes weekly

* Established by the State Department of Education in accordance with § 16-40-1 (Ala. Code, 1975)

GRADES 7-12

A minimum of 140 clock hours of instruction is required for one unit of credit. A time allotment of either 50 minutes per day or 250 minutes per week will satisfy this requirement and still allow for flexible scheduling. This requirement applies to those schools that are not accredited as well.

In those schools where Grades 7 and 8 are housed with other elementary grades, the school may choose the time requirements listed for Grades 4-6 or those listed for Grades 7-12.

REMEDIAL AND/OR ENRICHMENT ACTIVITIES

Remedial and/or enrichment activities should be a part of the time schedule for the specific subject area.

KINDERGARTEN

In accordance with *Ala.* Admin. Code r. 290-050-010.01 (4) Minimum Standards for Organizing Kindergarten Programs in Alabama Schools, the daily time schedule of the kindergartens shall be the same as the schedule of the elementary schools in the systems of which they are a part. This standard references the fact that kindergartens in Alabama operate as full-day programs.

In accordance with *Ala.* Admin. Code r. 290-050-010.02, the official guide for program planning in kindergarten is Alabama Kindergartens, Bulletin 1987, No. 28. Criteria to be used in scheduling are listed on pages 45-46 of this guide. These include a balance of individual exploration, small-group interest activities, interaction with peers and teachers, handling of concrete materials and many other real world experiences. The emphasis is on large blocks of time that allow children the opportunity to explore all areas of the curriculum in an unhurried manner.

HOMEWORK

Homework is a vital component of every student's instructional program. Students, teachers, and parents should have a clear understanding of the objectives to be accomplished through homework and of the role it plays in meeting requirements of a course. Homework should be meaningful and used to reinforce classroom instruction. It should not place students and parents in a position of having to study skills that have not been introduced and practiced through classroom instruction. Furthermore, students and parents should not be burdened by excessive amounts of homework.

Each local board of education shall establish a policy on homework consistent with the State Board of Education resolution adopted February 23, 1984. (Action Item #F-2)

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